

Railway Age

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Better Locomotives Mean Better Service

IN these columns the opinion was recently expressed that the present movement for more intensive utilization of locomotives has been instrumental in focusing the attention of railroad officers on the possibilities offered by various advanced features of locomotive design for effecting operating economies. It may be interesting to note that on at least one railroad where freight locomotives of advanced design have been placed in service, presumably with the primary object of effecting the possibilities offered by these locomotives for reduced operating expenses, the superior qualities of these locomotives as power plants—their capacity for higher tonnage rating and higher operating speeds—has actually effected an improvement in the service which this railroad is able to render. The ability of the new motive power to get over the road faster with its increased train load than the motive power which it succeeds, has resulted in quicker time of delivery to connections. That the improvement has been marked may be inferred from the fact that shippers have noticed the difference and are bringing an increasing amount of competitive business to the railroad in question. Such improvements, no doubt, in all cases would not result in direct increases of revenue, but as long as quality of service is practically all that one railroad has to offer in competition with another, means for improving the quality of service will always be considered seriously by the executive. To use the best of modern motive power offers one means of improving the quality of service.

The Latest Collision

THE disastrous collision at Gray, Pa., the facts of which have been reported by the Interstate Commerce Commission with commendable promptness, will serve as a reinforcement of the movement for the development of the automatic train-control, not the least of the arguments being the renewed emphasis that this case will place on the extreme difficulty attending all efforts to make the fireman's monitorship a sure reliance in the event of the engineman's failure. In several other collisions recently this feature has been prominent; showing quite clearly that there will always be a considerable percentage of the crises that arise when enginemen fall short of doing everything possible to avert a collision, that are so sudden and so quickly passed that no workable rule can be devised by which a second man can be made to supplement satisfactorily the vigilance of the first man. Mr. Rudd's proposal to use audible signals, instead of brake-setting apparatus, embodies great possibilities and unquestionably would promise, if energetically promoted, a decided increase in simplicity as well as a great saving in expense; but as the

question of expense is one which the government already seemingly has thrown to the winds—or at least has relegated to a secondary place—and as the accomplishment of simplicity in spite of all difficulties is one of the chief prides of American railroad men and manufacturers, the problem of train safety is not likely to be changed in any important degree by this collision. Efforts of American operating officers to put into actual practice in locomotive cabs their highest ideals of judgment, vigilance and 100 per cent efficiency, seem for the time being not to be meeting with satisfactory success; and those who look for improvement through machinery instead of through better men at the throttle have the center of the stage.

A Remarkable Freight Service Record

THE most extraordinary demonstration yet given of the increase that has occurred during the last three years in the capacity and operating efficiency of the railways has been afforded by their performance in handling freight traffic in the first half of 1926. Until this year the freight business of the first half of 1923 was the largest ever handled in the first half of any year, this having been partly due to the great amount of coal shipped in the months following the coal strike which ended in the later part of 1922. Without any such abnormal coal traffic conditions as existed in 1923, freight business in the first half of 1926 slightly exceeded that in the first half of 1923. There was, however, a very great difference in the way the business was handled in these two half years. Almost throughout the first half of 1923 there were car shortages, and during the first five months of the year the railways failed to furnish shippers 1,167,042 cars at the time for which they had ordered them, the average weekly car shortage being 58,377. On the other hand, in the first five months of 1926 the railways failed to furnish shippers only 1,447 cars at exactly the time for which they had ordered them, or an average of only 70 a week. Although the average number of cars loaded averaged about 950,000 a week, a new high record, the number of unfilled shippers' requisitions for cars was the smallest for any equal period in the history of the railroads, the service rendered in furnishing cars when wanted, being, as the figures show, almost 100 per cent. The railways of the Southwest, and especially those serving Oklahoma and Kansas, are finding it extremely difficult at present to furnish enough box cars for moving wheat because the crop is not only large but is exceeding all pre-harvest estimates of it. This, however, is a local condition, and the railways and the shippers' advisory boards for that territory are co-operating energetically and efficiently to deal with it successfully. Not only has freight business thus far this year exceeded that of any previous year, but all indications are that it will show a substantial increase during

the second half of the year. There appears to be no danger, however, that the railways will not be able to handle satisfactorily all the business that comes to them, although the prospects are that the freight car surplus will be reduced to less this fall than it has been at any time since the fall of 1923.

The Depreciated Dollar and Railroad Valuation

THE recent discussions of railroad valuation before the Interstate Commerce Commission in cases involving the recapture of earnings from two small railways in the St. Louis district are of great interest and importance from both the legal and economic standpoints. Counsel representing the commission's Bureau of Valuation, the state commissions and the railway labor unions contended that valuation should be based upon "prudent investment," and that little or no weight should be given to the estimated cost of reproducing railway properties at present prices and wages. Counsel for the railways contended that the present cost of reproduction must be given much weight.

If past decisions of the Supreme court and the provisions of the LaFollette valuation law are not to be disregarded, those who contend that the present cost of reproduction should be given virtually no consideration have, legally speaking, not a leg to stand on. The Supreme Court never, in almost thirty years, has rendered a decision in any public utility or railroad valuation case in which it has not expressly held that the present cost of reproduction must be considered. The LaFollette valuation law expressly requires it to be ascertained. Those who contend that cost of reproduction should be virtually ignored claim in effect that the commission should ignore not only the decisions of the Supreme Court, but the express provisions of the law under which it acts. Some of them practically admit this when they say the commission is acting in a legislative and not a judicial capacity, and therefore should be governed by considerations of public policy. Their assumption is that recognition of the cost of reproduction would be contrary to public policy because the resulting valuation would be larger than if it were based on "prudent investment" and that this would cause railway rates to be made higher than they otherwise would be.

From an economic standpoint the issue presented is a most interesting one. The principle that the cost of reproduction must be considered was derived from the analogy of the regulation of the rates and profits of a railroad or public utility to the taking of private property under the power of eminent domain, and was first clearly established by the Supreme Court in the Nebraska rate case (*Smythe vs. Ames*). In that case counsel for the state of Nebraska contended that the valuation of the railways should be based upon the cost of reproduction, the real reason being that following the panic of 1893 prices and wages had declined and it was assumed that the cost of reproducing the railways of Nebraska would be less than their original cost of construction. Counsel for the Nebraska railways claimed that the valuation should be based upon actual investment, and suffered a defeat insofar as cost of reproduction was recognized.

When the LaFollette valuation law was passed in 1913 the question of the weight that should be given to the cost of reproduction was important chiefly in connection with the appraisal of the land owned by the rail-

ways. This situation has been entirely changed by the great increases in prices and wages that have occurred since then. There can be no question whatever regarding the fundamental character of these changes. All economists recognize the difference between changes in prices and changes in property values. A general and great increase in prices is due to a decline in the value of money as compared with the value of commodities and property. It is generally conceded that this is what has occurred in the United States since the world war began. Nobody recognizes it more clearly or insists more emphatically upon others recognizing it than spokesmen of organized labor and of the farmers. Labor has reasonably and successfully demanded large advances in its money wages, mainly because of increase in the cost of living—in other words, *because of the diminished purchasing power of the dollar*. The farmers are up in arms against the prices they are receiving for many of their products, not because the prices are not higher than before the war, which they are, but because they have not advanced as much as the prices of most things the farmers have to buy, and in consequence the purchasing power of the farmers' products has declined.

Now, economically speaking, what would be the actual effect of the application, in the valuation of the railways, of the principle of "prudent investment," as it is being urged upon the commission? It would mean that at least that part of railroad property that had been acquired and constructed previously to some 10 or 12 years ago would be evaluated as if there had been since then absolutely no change in the purchasing power of money. The true measure of what the construction of the railroads actually cost is the amount of brains, labor and materials put into them. This true measure has not been changed by the depreciation in the value of the dollar as a result of which the required brains, labor and materials would now cost more in money. Therefore, a valuation of the property existing prior to 1914 or 1915 at the amount of money spent on it previously to that time would ignore its actual cost of construction in terms of brains, labor and material. It has even been contended by some that the value of that part of the property which has been created at the high prices and wages since the world war began should be based upon the wages and prices prevailing previous to that time. This, of course, would be a much more flagrant disregard of the actual cost of construction in brains, labor and materials.

What the argument for ignoring the so-called "present cost of reproduction" really means is that there should be confiscated an amount of the value of railroad property which bears the same ratio to its total real value that the value of the dollar of today bears to the value of the pre-war dollar. If, for example, the present dollar is worth only two-thirds as much as the pre-war dollar, then, on this theory, the value of the railroads should be found to be only two-thirds as great as it actually would have been found to be if the value of the dollar had not depreciated one-third. Presumably, the effect produced upon the net operating income the railways would be allowed to earn would be similar. In other words, they would be allowed to earn the same amount of net operating income, stated in money, as they would have been if there had been no decline in the purchasing power of the dollar, which would mean that the investors in their securities would be paid interest and dividends having a total purchasing power only perhaps two-thirds as great as those they would have received if the value of the dollar had not declined.

Practically no other property in this country has been

thus affected by the change in the value of money that has occurred. Census reports show that since before the war there have been enormous increases in the aggregate nominal wealth and income of the nation. There have been no such vast increases in real wealth and real incomes. The nominal increases have been mainly due to the writing up of nominal values and incomes to correspond roughly with the decline in the value of money.

It is argued that to recognize "cost of reproduction" in the valuation of the railways would be to justify the charging of railway rates that would be highly burdensome to the public. This argument is advanced by spokesmen of railway labor unions who have demanded and secured huge advances in money wages to offset the diminished purchasing power of the employees' dollar, but apparently see no inconsistency in then immediately contending that investors in railway securities should not be allowed to receive larger money returns to offset the diminished purchasing power of their dollar. If it is economically sound and right to "burden" the public by advancing railway rates in order to pay higher wages to offset the decline in the purchasing power of labor's wage dollar, why would it be economically unsound and wrong to so regulate railway valuation, rates and net return as to offset the decline in the purchasing power of capital's dividend dollar? The fact is, that if railway rates are increased only in proportion to general advances in wages and prices, the increase in rates merely offsets the decline in the purchasing power of money, and therefore imposes no increased burden upon the public in general. Past advances in railway rates have nowhere near offset the decline in the purchasing power of the dollar, and this has been especially true in western territory.

It is contended that present wage and price levels are abnormally high, that in consequence a valuation that recognized them now would be inflated, and that if subsequently there should be a general decline in wages and prices due to a future increase in the value of the dollar, the valuation would have to be deflated with results that would be disastrous to the railroad industry. There is force in this argument. There was a great inflation of farm prices and nominal farm values during and following the war. The subsequent deflation is one of the principal causes of the distress in agriculture at the present time, although a further cause is that the power of many farm products to purchase other commodities is now, because of maladjustment of prices, less than it was before the war. Certainly it would not be desirable for the railways to get an inflated valuation which, in a short time, would have to be deflated. Nobody is wise enough to say whether present wage and price levels are temporary or permanent, or in consequence what would be the ultimate effect of a railroad valuation based mainly upon present cost of reproduction.

A valuation which should completely ignore the decline that has occurred in the value of money would, if present wage and price levels should prove permanent, involve absolute confiscation of a large part of the true value of the railroads, correspondingly curtail their net returns, and greatly handicap them in competing for capital with other industries in which nominal values have been or will be readjusted in accordance with real values. On the other hand, a valuation based entirely upon the present so-called "cost of reproduction" probably would arouse a hostile public sentiment and might in future make it necessary for the railways to go through a period of deflation. Needless to say, if they had to go through such a period of deflation, other industries of the country also would have to do so, but any industry which escaped the necessity would be fortunate.

It happens, however, that the Interstate Commerce Commission does not have to choose between extreme theories of so-called "prudent investment," on the one hand, and of cost of reproduction, on the other. The Supreme Court has plainly stated in a long and consistent line of decisions that the original cost of construction, the probable present cost of reproduction and all other pertinent elements should be considered in making a valuation. There can be no question whatever that thus far the commission's Bureau of Valuation, apparently with the commission's approval, has followed a policy which has almost completely ignored the cost of reproduction in spite of the plain fact that, owing to the great change that has occurred in the value of money within the last twelve years, a valuation that ignored this element would be no valuation at all either legally, economically, or morally. All that apparently would be required to make real valuations of many of the fictitious valuations the commission has thus far announced, would be to so revise its figures as to give approximately the same recognition to the probable present cost of reproduction as is given to the amounts of money actually invested in construction. In other words, a real valuation would be more than original cost of construction, but less than cost of reproduction.

There is no actual conflict between the principles of cost of reproduction and of prudent investment if the word "prudent" is to be taken in its usual sense. Nobody would consider it prudent to invest capital in an industry with the understanding that any great changes in the value of money that might occur would be totally disregarded in fixing the valuation of the property and in consequence the return that might be earned upon the investment in it. No investment can be made without risk, and the danger of changes in the value of money is one of the risks that must always be taken. There is, however, a wide difference between losses incurred entirely as a result of mistakes of judgment or the operation of uncontrollable economic forces, and losses incurred because a government authority declines to recognize in regulating property plain economic changes that have occurred. The courts would never uphold the Interstate Commerce Commission in refusing to give weight in railroad valuation to so-called "cost of reproduction" because for it to do so would be to use the decline in the value of money as a pretext for attempting to confiscate a large part of the true value of railroad property.

Revision of the Accounting Classifications

II.

THE statement was made recently in these columns that the Railway Accounting Officers Association has shown itself inept in its work on the revision of the accounting classifications. It has been engaged in such activity for the last four or five years and has apparently succeeded only in getting to a point where its former very cordial relations with the Bureau of Accounts of the Interstate Commerce Commission have been placed in jeopardy. The story is perhaps involved, but rather interesting.

The Interstate Commerce Commission has been trying for some time to revise its several accounting classifications so as to bring them up to date. In its usual manner it has called upon the Railway Accounting Officers Association from time to time for such advice and as-

sistance as the latter might be able to offer. The start was made with the classification of operating expenses, the most complicated of all the classifications. In this case the Bureau of Accounts and the association co-operated by getting together on the work of preparing the draft of the proposed new text and content of the accounts. They produced before they got through with it a tentative classification which was sent around to all interested parties. The authors sought to be original, but the only result was to produce an arrangement of accounts just sufficiently different from the present arrangement to make comparison impossible with the figures set up in accordance with the 1914 classification. They added nothing to the science of railway accounting to compensate for this elimination of comparability, and the classification was so adversely criticized in various quarters that it was deservedly rejected and then abandoned.

The commission then turned its hand to the other classifications, including the classification of operating revenues; the income and profit and loss accounts, and the classification of investment in road and equipment. This time the commission adopted a new policy. It set out not to formulate new classifications but merely to revise the 1914 classifications in such a way as to make them include the rulings and interpretations of the twelve years they have been in use. In other words, it proposed to use the present classifications brought up to date by the inclusion of what may best be called a codification of the rulings relating to them. Considering that this was the object—and there could be no better object—the results have been eminently satisfactory. Comparability as between figures compiled under the new classifications and those compiled under the old would not be vitiated and the text of the accounts would be clearer and more complete.

The drafts of the new classifications have been made public in a bulletin of the Accounting Officers Association, and the commission is making every effort to put them into effect as of January 1, 1927.

An important point, however, is that the new classifications have been prepared by the Bureau of Accounts, and unlike the operating expense classifications are not a joint activity of the bureau and representatives of the Railway Accounting Officers Association. The commission, however, has followed its usual procedure of calling upon the latter organization for such recommendations as it might have to offer, and the association has been represented by its general accounts committee and by a sub-committee. The committee and sub-committee, it seems, have discussed each classification in a different manner and in a way in general that has not appealed at all to the commission. Thus, in the case of the classification of operating revenues, the sub-committee met in joint session with representatives of the Bureau of Accounts, discussed the draft of the proposed new classification and made recommendations for certain changes most of which the bureau felt it desirable to adopt. In the case of the Income and Profit and Loss Accounts, a different policy was adopted. The sub-committee met by itself, discussed the commission's drafts of the two classifications and then, and only then, made its recommendations, not in the form of discussion, but as a report. These representations were duly submitted to the bureau and some of them were adopted.

In the case of the classification of Investment in Road and Equipment still a third policy was adopted. The Accounting Officers Association committee did not take the draft of the classification as drawn up by the commission and discuss it with the commission's representatives, as in the case of the classification of operating

revenues. It did not even make representations for change as in the case of the Income and Profit and Loss Accounts. Apparently it did not consider the commission's draft of the Road and Equipment account at all. Instead, it set about to write a new classification all of its own. The present 1914 Road and Equipment classification has 62 accounts. The most important change in the commission's tentative draft has been the addition of new suspense accounts. The commission has also arranged the primary accounts under five general heads, but otherwise has made few other changes outside of adding the codification of rulings and interpretations made in the twelve years the classification has been in use. The five general heads are: I, Land; II, Fixed Improvements; III, Equipment; IV, General Expenditures, and V, Investment Suspense.

The new classification drawn up by the General Accounts Committee contains not five general groupings and 62 accounts. It contains just three accounts, namely, 1, Road; 2, Equipment, and 3, Investment Suspense. The idea is that each road would be allowed to subdivide these three accounts as it saw fit. But what reason the committee had for thinking that the commission would ever authorize three accounts where it now has 62 is not a matter of record. However, the new three-account classification was duly presented to the Bureau of Accounts without any comment whatever on the bureau's own effort at revision of the Road and Equipment classification. That the bureau received the proposed three-account classification coldly would be to put it mildly. Naturally, the bureau was surprised to find that its own child had been slighted. It proudly spurned the new three-account effort of the association, saying that the latter would be received as information, and Director Wylie advised Chairman Eastman that ". . . it will be noted that during the past year only a small part of the work of reviewing the classification by the Railway Accounting Officers Association has been accomplished. It is very important that the work of the committee in this connection be greatly speeded up. . . ." It appears from other evidence that the commission now seems about to "high-hat" the association, much to the chagrin of that proud body. The association, however, was quite careful at its Quebec meeting not to put itself on record as approving its committee's way of doing business.

The *Railway Age* believes the commission is now on the right track in attempting to revise the classifications by including in them a codification of the rulings applying to them. It believes, however, that the Railway Accounting Officers Association has embarked on a wrong course. Apparently there is nothing that the association could more wisely do than to at once discuss the Road and Equipment classification in the same manner followed with respect to the classification of operating revenues. The law gives the commission unrestricted authority to prescribe railway accounts and statistics, so patently one must play the game the commission's way if one is to join in the game at all. Certainly it is one thing to have recommendations accepted, and another to have them only received as information.

Apparently what the Railway Accounting Officers Association must now do is to retire from its position with the best grace possible in the circumstances and begin over again about where it left off when it was discussing the operating revenues classification. Possibly the association has already discovered that this is the best thing to do. Its friends, at least, will hope that it has, and that it may succeed in being less inept in handling the revision of the accounting classifications in the future than it has been recently.

New Books

Proceedings of the American Wood Preservers' Association for 1926. 338 pages. Bound in Cloth. Illustrated. Published by the American Wood Preservers' Association. E. J. Stocking, Secretary, 111 West Washington street, Chicago.

This volume comprises the complete report of the convention of the American Wood Preservers' Association held at Cleveland, Ohio, on January 26 to 28, 1926, and embraces reports of committees and personal papers relating to the scientific, commercial and industrial aspects of the timber treating industry. Owing to the fact that the railroads are the primary users of treated wood, the presentation of data and the discussion of problems arising from the use of treated wood on the railroads are given a prominent place in the proceedings. One of the most noteworthy features of the proceedings from the standpoint of the railroad man is a report on the present status of the projects for the treatment of car lumber. Other valuable material relates to ties, piling, posts, poles, etc. In addition to the matter relating to the proceedings of the convention, the volume contains 42 pages of statistics on the treatment of timber and the preservatives used in the United States in 1924, prepared by R. K. Helphenstine, Jr.

Proceedings of the Eighth Annual Meeting of the National Association of Railroad Tie Producers. 104 pages. 6 in. by 9 in. Bound in Paper. Published by the Association. E. A. Morse, Potosi Tie & Lumber Co., St. Louis, Mo., Secretary.

The National Association of Railroad Tie Producers is essentially a trade organization and its annual meetings are devoted primarily to the discussion of problems arising in the production and marketing of railroad cross ties. This volume of the proceedings, like its predecessors, therefore contains reports of production and market conditions presented by representatives of the various production areas of the United States. The relation of the industry to the railroads is covered in a report and discussion of cross tie specifications, a paper on The Future Cross Tie Requirements by J. H. Waterman, superintendent of timber preservation, Chicago, Burlington & Quincy, and an address on The Effect of Consolidations by E. T. Howson, western editor of the *Railway Age*. The relation of the industry to forestry is covered in an address by Colonel W. B. Greeley, forester, Forest Service, United States Department of Agriculture, and a paper on The Tie Industry in Our Program for Forest Thrift by R. D. Garver of the Forest Products Laboratory, Madison, Wis.

The Railroad Freight Service. By Grover G. Huebner, Professor of Transportation and Commerce in the University of Pennsylvania, and Emory R. Johnson, Dean of the Wharton School of Finance and Commerce and Professor of Transportation and Commerce in the University of Pennsylvania. 589 pages, 5½ in. by 8½ in. Bound in cloth. Published by D. Appleton & Co., New York. Price \$5.00.

Professors Huebner and Johnson have written several important books on railway traffic matters. This is the third book on which they have collaborated. The other two are "Principles of Ocean Transportation" and "Railroad Traffic and Rates." Professor Johnson also collaborated with Professor T. W. Van Metre of Columbia University on another volume entitled "Principles of Railroad Transportation."

The present book, "The Railroad Freight Service" will be found useful by the neophyte traffic man pri-

marily, although it is true that it does discuss some transportation or operating department phases. Its content is indicated by the chapter headings, which include car service, expedited freight service, special services and privileges, railroad freight shipping papers, railroad shipping rules, routing, etc. There is an entire section of about 140 pages, containing seven chapters, dealing with the organization of the freight traffic department.

The book is apparently designed to be a text book. It is, however, one of those books that must be included in any railway bibliography, not only because of the scholarly manner in which the work has been handled, but because it fills a place not hitherto occupied in railway literature. The book adds nothing new to the science of railroading. The volume is descriptive only and the opinions of the authors are not made particularly apparent. The transportation man who reads the book may find here and there a touch of unfamiliarity with operating department practices, but he will not believe this sufficiently serious to detract from the otherwise outstanding excellence of the work.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Motor-Bus Transportation. Part III—Asia, Africa and Oceania, by H. C. Schuette. Part I—Europe was listed in the booklist for April 10, and Part II—Canada and Latin America in the list for May 8. The three form a concise survey of the development of highway transport, for passengers. U. S. Dept. of Comm. Trade information bulletin no. 416. 53 p. Pub. by Govt. Print. Off., Washington, D. C. 10 cents.

Railroad Consolidation, by Elliott H. Goodwin. Reprint of his statement before House Committee on interstate and foreign commerce. Accompanying exhibit, p. 11-20 gives summary of State fees and taxes incidental to corporate organization, reorganization of doing business within a State. 20 p. Pub. by Chamber of Commerce of the U. S., Washington, D. C. Apply.

Suggested List of Works on Railways, compiled by Library, Bureau of Railway Economics. Revision of earlier list to include recently published books on railroad economics, organization and management, finance, accounting, and operation. 16 p. Issued by the Library, Bureau of Railway Economics, Washington, D. C. Apply.

Transportation Costs on the New York State Barge Canal, by Bureau of Railway Economics. Its Bulletin, Miscellaneous series no. 40. 32 p. Pub. by Bureau of Railway Economics, Washington, D. C. Apply.

Periodical Articles

Diesel Engines—Their Early History, Development and Present Application, by E. V. Buchanan. "The Diesel electric locomotive" p. 325-326. *Engineering Journal (Canada)*, July 1926, p. 323-327.

Influence of Personnel on Industry, by R. A. C. Henry. "Railway employees' relationship organizations," p. 335-336. *Engineering Journal (Canada)*, July 1926, p. 333-336.

The Old Cattleman Comes Back, by Charles Moreau Harger. History of the cattle industry, including its relation to railroad development in the west. Author is editor of the *Abilene (Kans.) Daily Record*. Century, August 1926, p. 414-420.

Situation des Chemins de Fer Américains en 1925, by J.-B. Legros. Economic factors reviewed. *Journal des Économistes*, June 15, 1926, p. 373-375.

Southwest Texas Has World's First Onion Special. Illustrated account of still another "special" of 1926. *Express Messenger*, July 1926, p. 13.

Suburbanite Is Revealed by a Ballot on Dogs, by Charles McD. Puckette. A non-serious examination of the preoccupations of suburbanites including train service and the various uses made of it. *New York Times Magazines*, July 11, 1926, p. 2.

Letters to the Editor

[The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]

Positive-Meet Argument Applied

ALBANY, N. Y.

TO THE EDITOR:

The reader of recent issues of the *Railway Age* who is interested in train rules and the lessons to be drawn from the accident reports, is likely to be possessed of a spirit of mild wonder at the fragmentary way in which some quite significant facts are presented.

For example, in the issue of July 3, page 25, there is a report of a recent collision at Gamble, Ala., the causes of which are discussed by the Bureau of Safety and by yourself with more or less acumen, but nothing is said about the very significant way in which the article published in the issue of June 19, page 1925, fits that collision.

The meeting point of those two trains was customarily confirmed by train order and this vicious practice came pretty near being the principal cause of the failure of the engineman, and of the fatal results. The viciousness of this practice was well set forth in the article of June 19, to which I refer; that is, the article reporting the address of Mr. Droege at Montreal, advocating the positive meet.

Again, the movements of those two trains, one of them 15 minutes late and the other 25 minutes late, constituted just the situation in which the positive meet would most effectively show its adaptability and its superiority. What more significant comment could there be on Mr. Droege's theory?

Readers who give careful attention to the problems which arise in train operation will note other obvious comments to be made in cases like Gamble. The everlasting and monotonous rubber-stamp endorsement at the end of Mr. Borland's reports, to the effect that "had an adequate block signal system been in use on this line, this accident would probably not have occurred," and so on, is a very poor substitute for the vigorous and intelligent discussion of these questions which a government bureau, should properly give us.

A. B. S.

A Plea For Less Whistling

WASHINGTON, D. C.

TO THE EDITOR:

Horse and buggy days are past and gone, I learn by reading in your paper of July 3; and that the practice of blowing the whistle at crossings three or four times as long as was necessary in the old days is now in keeping with the times. But why should the railways be in keeping with the times in this mad rush to cure all of our evils with noise? The making of more noise is not the remedy. The signal engineer of one of our biggest railroads has said that at crossings he wants no more bells; the visual signal is the only appropriate thing. To try to warn all motorists by the locomotive whistle is

attempting the impossible. The whistle warning must be continued in force in order to comply with long-standing statutes; but to expect this to save the lives of the reckless speedster or the drink-crazed morons who constitute such a large share of the people killed at crossings is futile.

Motorists have all the warning that they deserve when there is a conspicuous sign at the side of the road approaching the railway crossing. The engineman will, of course, keep careful watch as he comes near a crossing and will exert all possible effort to awake any sleepy or reckless driver that he may see approaching; but he is less likely to do his best in this direction if he is required to keep his hand and his mind on the whistle-cord for ten or fifteen seconds at every crossing whether anybody is approaching on the highway or not. Probably nine-tenths of the crossings, the engineman will tell you, he passes over without seeing person, automobile or anything.

Why use up thousands of dollars worth of steam by such excessive whistling at these crossings?

I am hoping that you will enlighten the American Railway Association by telling its leading members to beware of their legal departments which always advise more whistling to stave off the lawsuits of people who are struck by trains at crossings. The thing that the lawyers ought to do in these lawsuits is to keep on pounding juries to take such action as will convince reckless and careless drivers that their troubles are due wholly to their own negligence or worse than negligence.

E. AVERY.

Are Railroad Power Plants Doomed?

BOSTON, Mass.

TO THE EDITOR:

Your editorial on "Are Railroad Power Plants Doomed?" in the June 17 Daily Edition, is appropriate, but may mislead some readers, executives, and others, not familiar with all of the demands upon many railroad power plants, because the editorial ignores an important factor, i. e., heating.

Heating of terminal and shop buildings may be the major demand on many such power plants located in the northern sections.

In one large shop, much of the electricity generated is produced by a turbine operated by exhaust steam from the shop air compressors. The shop buildings are all heated during much of the heating season, by a hot water circulating system, by the use of exhaust steam from compressors and power plant auxiliaries. Live steam is used for heating the circulating water at night and to boost the temperature in severe winter weather.

A study of some local power plants has revealed that an "outside" source of electrical energy where available is not a justifiable expense when all of the factors involved in the plant are properly considered.

A careful check up on the costs of operation and economies of many railroad power plants might reveal ways in which such costs could and should be reduced, resulting in a much better performance, comparable with outside plants.

The answer to your question "Are Railroad Power Plants Doomed?" is, No—where heating of extensive terminal and shop buildings is involved.

C. B. SMITH,
Asst. to the Mechanical Supt.



The Lighter Fills Were Made By Team Work from Borrow Pits

New Second Track on Rock Island Produces Marked Savings

Carefully planned improvements on Kansas division reduce operating costs and increase capacity

ONE of the most difficult problems which has confronted the management of the Chicago, Rock Island & Pacific in its efforts to restore the effectiveness and earning power of that system since the financial collapse which resulted in the receivership of 1915 has been the prosecution of much

terminating which of the many possible improvements should be carried out from year to year with the funds available.

Urgent Need for Double Track

Among the crying needs of the Rock Island has been a greater mileage of double track and as pointed out as early as 1916 in an article appearing in the *Railway Age* of May 19 of that year, the critical point in this regard was the main line of the Kansas division between Topeka, Kan., and Herington. As seen on the map, this line serves as a main trunk connecting the New Mexico and Texas lines at Herington with the Chicago and St. Louis lines at Kansas City. This line is also joined at McFarland by the line to Colorado Springs and Denver, and therefore serves also as the connection between the Colorado line and the eastern, southern and southwestern lines.

The larger part of the traffic on this line is generally eastbound, comprising California agricultural products, petroleum products from the Texas and Oklahoma fields, Kansas wheat, livestock and lumber. The westbound business is primarily products of manufacture. The eastbound traffic is subject to pronounced fluctuations and reaches its height during the Imperial Valley cantaloupe movement in June and July and obviously demands expeditious handling. The normal business on this line is handled with approximately 10 freight trains in each direction daily but increasing to 16 or more during periods of heavy traffic. It is not surprising, therefore, that the freight traffic density on this line is exceeded on only one other portion of the system, namely, the line between Chicago and Rock Island. In the third quarter of 1925 the net tons handled per day between Topeka and McFarland reached 6,110 westbound and 6,560 eastbound. However, during the peak of the cantaloupe movement the eastbound tonnage considerably exceeds the figure given above. In addition to the freight traffic, the line handles 16 passenger trains



The Heavier Work Was Done with Steam Shovels

needed physical improvements. This has arisen primarily from the provision of the general mortgage of 1902 which limited the issuance of additional bonds applicable to additions and betterments to \$3,300,000 per year. This positive limitation on capital expenditures resulted in the protracted postponement of many improvement projects that offered unquestioned assurance of economies in operation and increases in traffic capacity, and in consequence the management has been required to exercise painstaking discrimination in de-

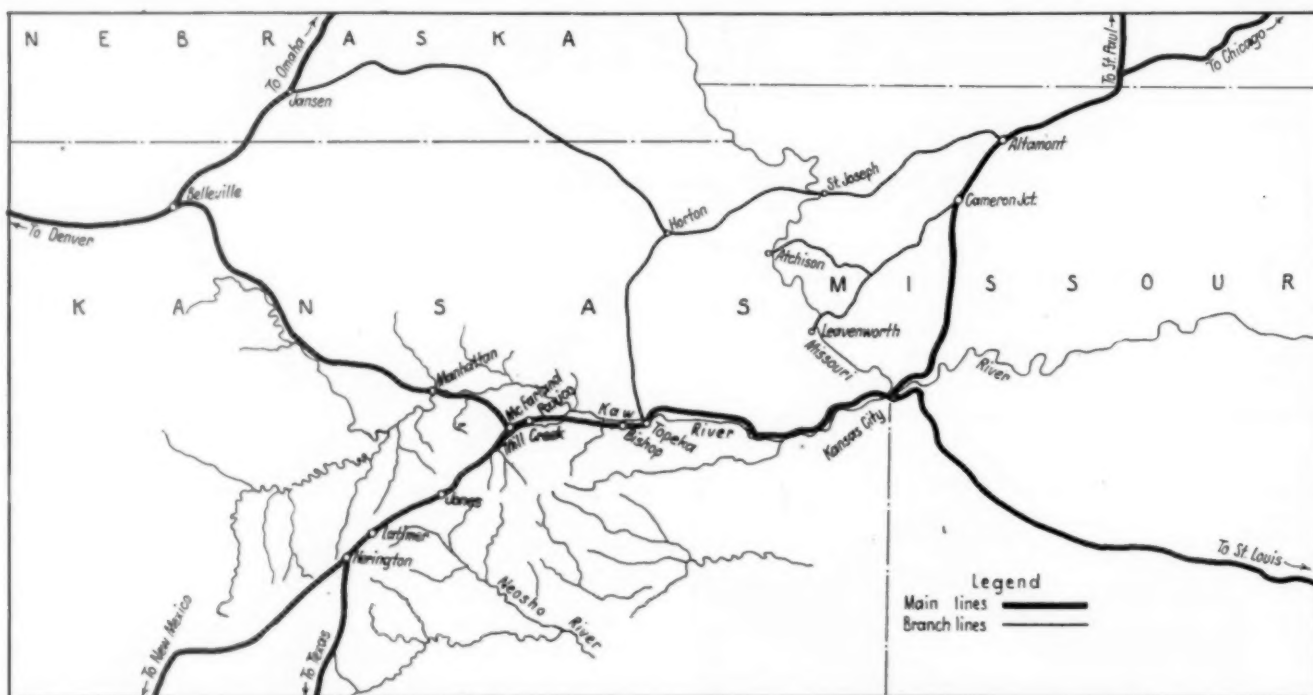
of which 12 cover the entire distance between Kansas City and Herington, while 4 are Colorado trains which make connection at McFarland.

From Kansas City to Topeka, a distance of $64\frac{1}{2}$ miles, the Rock Island uses the double-track main line of the Union Pacific over which it has trackage rights. But until 1919 all of its own line from Topeka to Herington, 81.1 miles, was single track. In that year authority was issued for the first of a series of second-track construction projects covering the entire distance between Topeka and Herington which have been carried out in progressive stages since that time, the last unit covering a distance of 22 miles, having been authorized in March of the present year. A considerable part of the work is light, and the total estimated cost, about seven million dollars, is not an extraordinary sum for an improvement of this magnitude. In fact, the entire undertaking may be characterized as a good example of what can be done to make each dollar go as far as possible. Limitations of financing made it necessary to undertake the work in relatively small units and to de-

of McFarland the country is more undulating so that considerations of economy of construction led to the adoption of an 0.8 per cent ruling grade in both directions. In general, the stretches of maximum grade were short, but from a mile east of Celia to Jones, a distance of 7.7 miles, where it ascends the Alta Vista hill, the original line was constructed with an almost continuous 0.8 per cent grade against westbound trains, uncompensated for curvature. Also, leaving the yard at Herington, the original line made a climb of three miles on a practically continuous 0.8 per cent grade against eastbound trains. With the exception of the Alta Vista hill, the curvature is relatively light and throughout the entire line the rate of curvature was limited to 3 deg.

Was Operated as Two Engine Districts

For many years the line between Kansas City and Herington was operated as two engine districts for freight trains with the intermediate terminal at Topeka, the 64.5 mile district from Kansas City to Topeka be-



How the Line Between Herington and Kansas City Serves as the Connecting Link in the Rock Island System

termine an order of procedure which would insure that each unit completed would prove of definite advantage prior to the completion of the entire project.

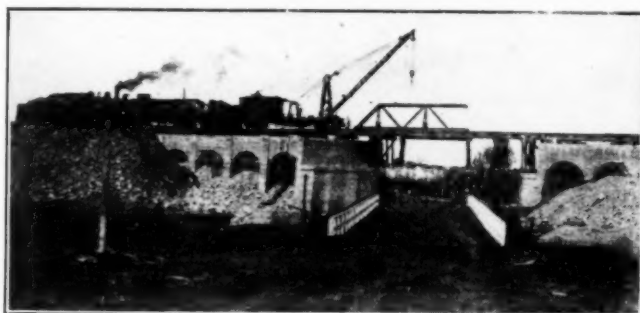
The territory occupied by the line between Topeka and Herington is one of varying characteristics. From Topeka to Maple Hill, a distance of 21 miles, the line is located at the base of low bluffs bordering the south bank of the Kaw river. At Maple Hill the line leaves the Kaw to follow the valley of a small tributary known as Mill Creek, on an almost continuous ascent for 34 miles to the summit of the Alta Vista hill which is located on the ridge between the Kaw river on the north and tributaries of the Neosho river on the south, the general direction of this ridge being followed for the remaining 27 miles to Herington.

Along the Kaw river and for most of the distance to McFarland, the location favors light construction, and the original line was built with grades which did not exceed 0.5 per cent in both directions but which on most parts of the line were 0.3 per cent or less. West

ing operated as a turn around district. Between Kansas City and McFarland the tonnage ratings were determined on the basis of 0.5 ruling grades in each direction, while between McFarland and Herington the ruling grade was 0.8 per cent in each direction. However, between Latimer and the top of the hill at Jones the line has an undulating grade line in which the sections of maximum grade are of relatively short length, permitting of gravity operation with train loadings in excess of that for the 0.8 per cent grade. As a consequence, on the two long stretches of continuous 0.8 per cent grade for the distance of three miles east of Herington and on the long climb westward from McFarland to Jones, it was necessary to provide helper service for trains that could readily be operated over the remaining portion of the line unaided. The volume of traffic being handled was such as to tax the capacity of a single track line for many years before any second track work was undertaken.

The adoption of a tentative program for second track

construction imposed the problem of determining what revisions of grades and alignment should be carried out concurrently with it, and exhaustive studies were made to this end. This led to the decision to establish a ruling grade of 0.4 per cent against movements in either direction between Topeka and McFarland and 0.4 per cent against westbound and 0.5 per cent against eastbound traffic between McFarland and Herington. However, it was found impractical to eliminate the 0.8



The Bridges Are of Permanent Construction

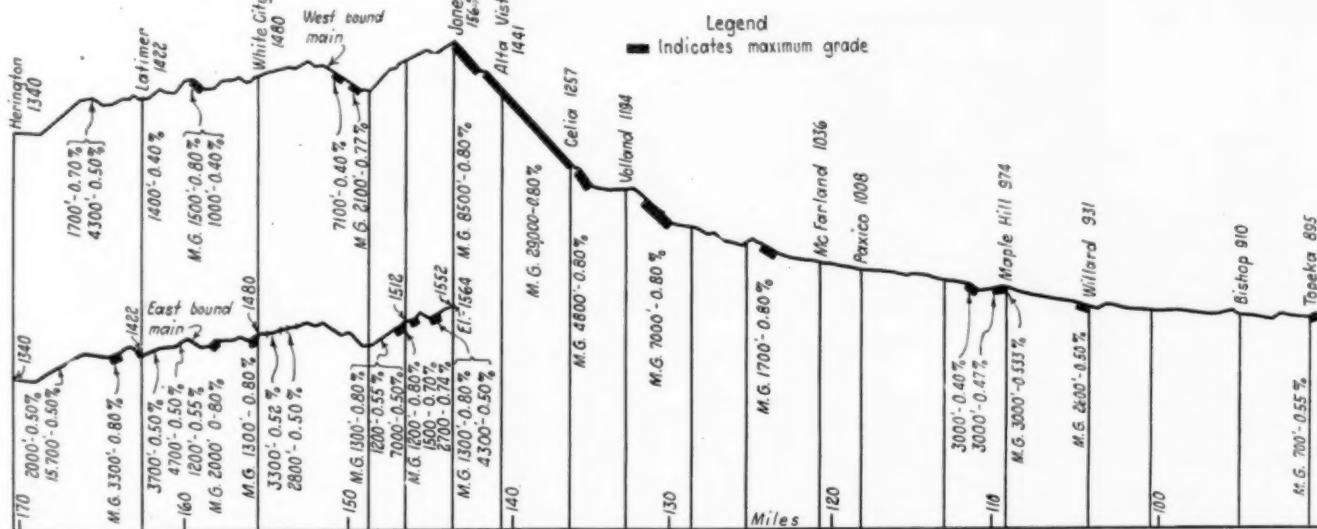
per cent grade for a distance of seven miles between Celia and Jones at a reasonable outlay. Consequently it was decided to build second track on this portion of the line on the existing grade with the idea of providing a helper engine to assist westbound trains carrying the full tonnage up the Alta Vista hill.

The Initial Step in the Project

The first step in the project was to undertake second track construction at those points in the line where it

Following the completion of this improvement, no work was undertaken until the spring of 1923 when authority was issued for the closing of the gap in double track between Paxico and Bishop, thereby affording continuous double track between Topeka and McFarland, the portion of the line which carries the heaviest traffic. While this project entailed heavier work than the two previous units, most of the grading was relatively light and the total grading on the 22 miles amounted to only 185,000 cu. yd. in embankments and 176,000 cu. yd. of excavation in cuts. This work was completed in April, 1924.

In the summer of 1923, shortly after the work between Paxico and Bishop was well under way, construction of second track was authorized from Herington eastward to Latimer, a distance of six miles, including a 3½-mile change of line and grade immediately east of Herington. While this unit of the work comprised one step in the general double-tracking program, it had for its immediate purpose the improvement of yard operation at Herington and greater expedition in starting east bound trains out of the terminal. As previously mentioned, the line to the east of Herington rises on an almost continuous 0.8 per cent grade for a distance of three miles from the east throat of the yard, generally necessitating the employment of a helper engine on outgoing eastbound trains. Furthermore as will be seen in the map of the Herington yard, the yard layout at that point was an awkward one that was difficult to correct. The increase in the length of trains with the introduction of heavier power had given rise to a demand for longer yard tracks, but extension westward was prevented by the presence of a crossing with the Missouri Pacific at grade, while an extension eastward along the existing line would have entailed the construction of the



Condensed Profile of the Main Line of the Kansas Division from Kansas City to Herington

could be carried out at the least expense and where it would afford the maximum relief in expediting the handling of traffic on the single-track line. Accordingly the work undertaken in 1919 consisted of additional second track for a distance of six miles from Topeka to Bishop and for four miles east from McFarland to Paxico. In both locations the grading was light and involved no changes of grade. Both cases also comprised double-track approaches to terminals, thereby decreasing the detention of trains at terminals or the single-track line on account of congestion in the terminals.

yard track extension on an 0.8 per cent grade and also beyond the junction of the yard with the Salina branch.

Introduce Change of Line and Grade

This situation led to the development of a re-location of the line eastward out of Herington for the purpose of developing distance for a reduction of the grade up the hill from 0.8 per cent to 0.5 per cent. This new location follows the line of the Salina branch for a distance of about 3,000 ft., thereby moving the junction of the two lines as well as the foot of the eastbound grade

by that distance and affording adequate room for the expansion of the Herington yard in a satisfactory manner.

This work was heavier than on any of the previous projects and involved 438,000 cu. yd. of fill and 439,000 cu. yd. of excavation. The work was completed in May, 1924, except that only one track was constructed on the new location, the old line being retained for down-hill westbound trains (by means of left hand operation) until such time as the westbound (future eastbound) yard is extended along the new location.

In March, 1925, work was started on the extension of second track from Latimer eastward to Jones 20.5 miles. This work involved considerable heavy grading, totaling 303,000 cu. yd. of fill and 143,000 cu. yd. of excavation, and was completed on December 22, 1925. Second track construction on this section included a reduction in grade to a maximum of 0.5 per cent against eastbound trains and 0.4 per cent against westbound trains. The completion of this unit of the work was of immediate advantage in that it permitted an increase in the tonnage rating of eastbound trains for the entire distance from Herington to Kansas City, for the reason that the portion of the line on which improvements remain to be carried out, namely, from Jones to McFarland, imposes no limiting grades against eastbound movements.

Last Unit of the Program Now Being Carried Out

The improvement of the last stretch of the division, namely, from Jones to McFarland, was authorized in March of the present year. This also involves heavy work. The grading is estimated at 87,840 cu. yd. of solid rock, an equivalent amount of loose rock and 673,000 cu. yd. of earth. The section embraces practically no grades adverse to eastbound movement and the second track work is being carried out to a grade line which will reduce grades between McFar-

land in elevation is only a few inches no departure was made from the standard spacing of 14 ft. between centers of tracks, but in some cases there are marked differences in grades and the two tracks are spaced as much as 42 ft. apart center to center. Spreading of the tracks was also resorted to at the third crossing of Mill Creek where the spacing was made 22 ft. to permit of the construction of a single track bridge for the second track and



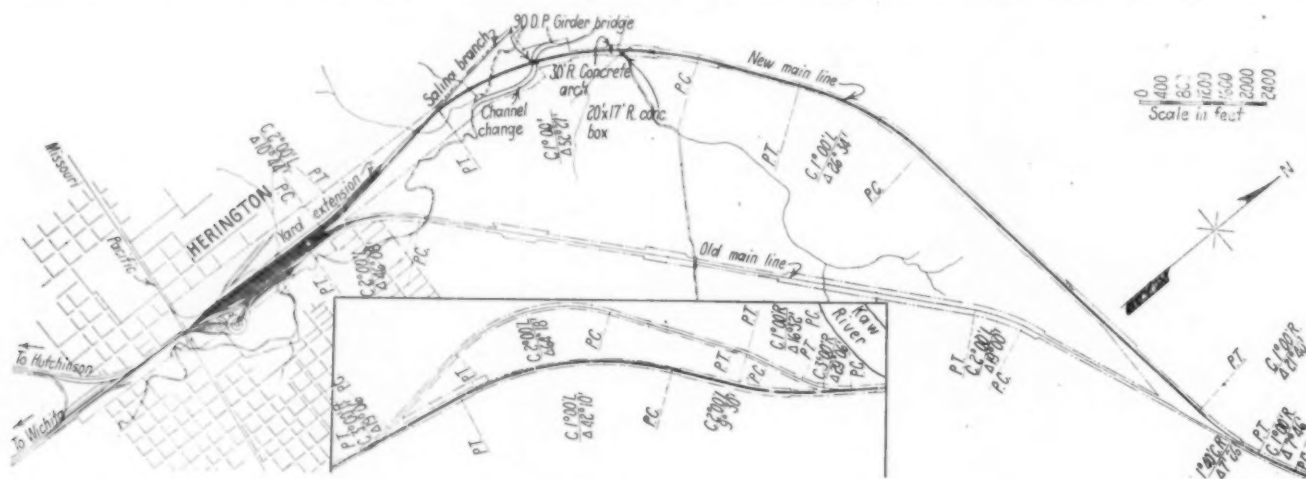
A High Filling Trestle Near Herington, Kan.

thus avoid interference with an existing through truss bridge which carries the old track over this stream.

In some cases, deviations in the grade of the two tracks was avoided by resorting to minor increases over the ruling grade for short distances. This expedient obviated the necessity for disturbing the existing track or for spreading the track centers enough to permit of placing the new track on the established maximum grade. Cases of this kind were carefully investigated to insure the thorough feasibility of momentum operation.

Reduce Rate of Curvature

Every effort was made to improve the alinement by flattening the curves to 1 deg. with a maximum rate of



Map of the Grade and Line Change East of Herington, in the Small Box—the Line Change Near Willard

land and Celia, 15 miles, to 0.4 per cent against westbound trains. The remaining distance from Celia to the summit of the hill at Jones is being constructed to an 0.8 per cent grade for both tracks, on which westbound trains will be operated with a helper whenever the preponderance of business is westbound and requires the makeup of westbound trains to full tonnage rating.

The grade on each track was considered separately in all cases where grade revision was necessary and, as a consequence, there are many places where the two tracks are at different elevations. Where the difference

curvature of 2 deg. An exception to this is observed on the 0.8 per cent helper grade between Volland and Jones, where no departure was made from the existing alinement. However, only two pronounced changes of line were carried out, namely, the relocation east of Herington and another between Willard and Maple Hill. The Herington-Latimer change involved an increase in the length of the line of 2,600 ft. and introduced additional curvature to the extent of 44 deg. The prominent feature of this work was the construction of an embankment having a maximum height of 40 ft. and containing 373,000 cu. yd. of fill. This is pierced by a 30-ft. arch, 120 ft.

long, and a reinforced concrete subway of 20-ft. span and 17 ft. 8 in. clear height for a highway crossing with provision for a waterway below the highway floor.

The other relocation is 1.89 miles long and was undertaken for the purpose of reducing distance and curvature as well as grades. It shortens the line 847 ft., eliminates 53 deg. of central angle and replaces two curves of 3 deg. and two curves of 2 deg. with two curves of 1 deg. The maximum grade was reduced from 0.7 per cent to 0.5 per cent. This change involved 86,000 cu. yd. of excavation in cuts and 44,000 cu. yd. of fill in embankments, the excess of excavation being disposed of in embankments west of the line change.

Owing to the marked differences in the amounts of grading involved in various portions of the line, considerable variation prevailed in the method of handling the work. A considerable portion of the lighter fill was made with teams from side borrow but most of the heavier work was handled with steam shovels and narrow-gage cars. At one point along the Kaw river, east of Willard, a high side-hill rock cut was taken out by station men, wasting the spoil on the river side of the track. Bridge work is entirely of permanent construction, including a number of steel bridges on concrete piers and abutments, many concrete pipe and box culverts, and several concrete highway undercrossings.

Standards of Track Construction

The second track is being laid with 100-lb. R. A. rail which is in 39-ft. lengths on the more recent units of the work. Creosoted ties, fully tie plated, are used at a spacing of 20 in. Rail joints are of the 100 per cent type without spike slots; four Henggi rail anchors are applied per rail. The new track has been put in service on cinder sub-ballast on embankments made by teamwork

cept that the passing tracks will be 5,000 ft. long. Under the typical passing track arrangement there is a crossover between main tracks directly in front of the station with entrances to the passing tracks just beyond the ends of crossover switches. All four switches are controlled by interlocking from the station and the leaving

SAVINGS IN OPERATION RESULTING FROM THE COMPLETION OF SECOND TRACK BETWEEN BISHOP, KAN., AND PAXICO, IN MAY, 1925, AS COMPARED WITH THE AVERAGE MONTHLY RESULTS FOR A TEST PERIOD BEGINNING JUNE 1, 1923, AND ENDING NOVEMBER 10, 1923.

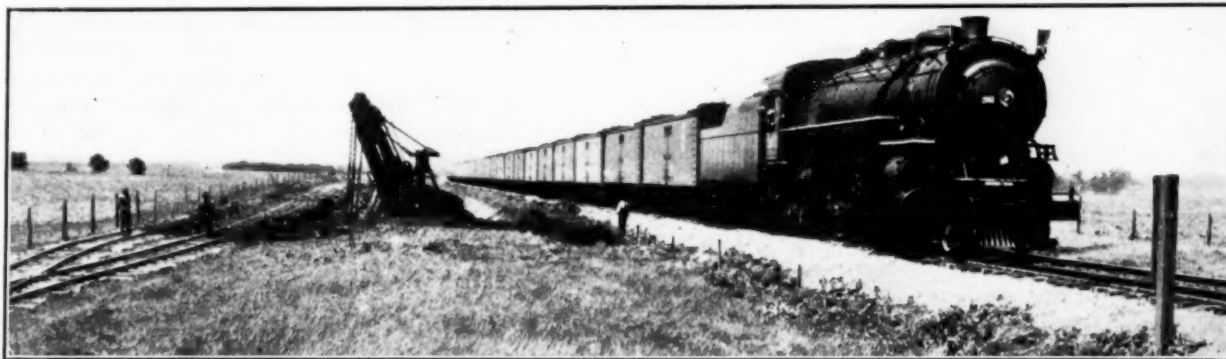
(Economies due primarily to increase in average speed of trains and consolidation of two engine districts into one.)

Train labor saved:	
368 trips at 53 miles = 19,504 train miles at \$0.2919	= \$5,693.22
Gross ton miles per train hour:	
Average June, 1923, to November 10, 1923....	23,542
Average for May, 1925.....	27,961
Increased without added cost.....	
4,419 g.t.m. for 5,015 hours at \$0.9889 per 1,000 g.t.m. =	21,915.01
Overtime saved:	
Overtime for test period in 1923 per million g.t.m. =	6 hr. 14 min.
Overtime in May, 1925, per million g.t.m. =	3 hr. 56 min.
Saving in overtime per million g.t.m....	
2 hr. 18 min. for 140,000,000 g.t.m.....	1,887.15
Savings due to abandoning terminal at Topeka.....	3,288.81
Net saving in wages of operators.....	1,032.30
Fuel saving.....	5,985.35
Total saving in transportation costs.....	\$39,801.84
Increased expenditures for labor for maintenance of way and structures.....	891.20
Net monthly saving in operating expenses.....	\$38,910.24

ends of passing tracks have spring trailing switches. As a result, trains may enter and leave passing tracks without stopping.

Determine Resulting Economies

Following the completion of each stage of the improvement work steps were taken to study the result-



A Cantaloupe Train, the Exacting Requirements of This Traffic Intensified the Need for Second Track

and Iowa burned shale on roadbeds made in steam shovel work. The absence of any suitable ballasting material in the vicinity of the work has made it necessary to haul gravel for top ballast from Hoeker, Mo., on the Osage river, a distance of 213 miles from the nearest point of the second track work in progress during the past three years.

The spacing and arrangement of passing tracks was given careful consideration. Many of the old passing tracks were incorporated in second track and the number of passing track locations was reduced from six to two between Paxico and Bishop and from four to two between Jones and Herington, but the passing sidings provided are of greatly increased capacity. At Valencia one center siding 7,000 ft. long was provided, while at Maple Hill, Jones and White City, tandem passing tracks each 4,500 ft. long were constructed. The plans for the work now under way between McFarland and Jones called for a similar arrangement at Volland ex-

ing economies in operation. The first marked savings were effected with the inauguration of double-track operation between Topeka and McFarland which resulted in a marked speeding up of train movements.

When this part of the line was all single track, the average speed of freight trains was only 7.5 miles per hour. A check of the speeds in 1920, some time after second track had been built between Topeka and Bishop and between McFarland and Paxico showed an average speed of 11.0 miles per hour between Topeka and McFarland. In 1924 after second track had been completed between Topeka and McFarland the average speed was found to have been increased to 20 miles per hour.

As a result of this increase in speed it was found possible to abandon the terminal at Topeka and run freight trains through from Kansas City to Herington. A comparison of operating costs by months following that date with average costs during a test period, ex-

tending from June 1, 1923, to November 10 of that year, showed savings ranging from \$3,000 to \$61,000 per month, the average per month for the 12 months from June, 1924, to May, 1925, inclusive, being \$38,000. A typical analysis of the savings for the month of May, 1925, is shown in the tabulation.

Similar analyses of the economies resulting from the reduction of grades and change of line between Herington and Latimer and the extension of the yard at Herington showed monthly savings ranging from about \$7,000 to \$33,000, with an average of about \$18,000. These figures take into consideration the reduction in delays in the yard, the elimination of helper service by yard engines and an average increase of 243 tons per train eastbound. Considering the two projects completed in 1924 as a unit a conservative estimate of the net saving accruing from a capital expenditure of \$2,200,000 is \$660,000 per year.

Following the completion of second track between Latimer and Jones, a further increase in the speed of trains was effected which resulted in an increase in gross ton-miles per train-hour and a saving of overtime hours, which resulted in a reduction in expenditures for operation of about \$300,000 per year. The capital expenditure for this work was \$1,900,000. Based on the results of the actual savings obtained as a consequence of the improvements now completed between Topeka and Herington, it is estimated that the improvement work now in progress between McFarland and Jones, which will represent a capital outlay of \$2,400,000, will effect additional economies of \$400,000 per year.

All of the improvement work on the Kansas division was planned and carried out under the direction of C. A. Morse, chief engineer of the Rock Island. The earlier projects were handled in the field under the immediate direction of Roy Leas, assistant engineer, and the later work under the supervision of Guy L. Murphy, assistant engineer.

I. C. C. Inquires Into Salary Increases

WASHINGTON, D. C.

AUGUST A. BUSCH, as chairman of the board of directors, and William Cotter, as president of the St. Louis & O'Fallon and the Manufacturers' railways, were called upon to testify before Examiner J. Paul Kelley of the Interstate Commerce Commission on July 12 as to whether and how they had earned increases in compensation voted to them by the directors in 1923 or whether the increases were made to reduce the net income of the companies possibly subject to recapture. The case involving the ascertainment of the excess income of the two roads, if any, which was argued before the entire commission on July 1 and 2 as to the methods and principles of valuation to be used in ascertaining valuation for recapture purposes, was re-opened for further hearing on the subject of charges to operating expenses for the years 1920 to 1923, with reference to the increased compensation of the two officers, and also as to the adequacy of the charge for a daily passenger train run for the accommodation of miners from East St. Louis to a mine controlled by the Adolphus Busch estate, which also controls the two railroads.

Mr. Cotter testified that he had accepted the presidency of the two roads in 1916, at Mr. Busch's solicitation, at a salary of \$12,000 a year, with the understanding that he should receive more if he succeeded in improving the condition and earnings of the properties. He

said that he had been receiving \$35,000 a year. In 1920 he had asked and received an increase to \$16,000 on the showing made, and in April, 1923, at his request, the directors of the O'Fallon had voted him a payment of \$25,000 as additional compensation, in recognition of what he had done for the property. He said that at the same time they had voted to pay a salary of \$18,000 a year to Mr. Busch as chairman, on Mr. Cotter's recommendation, because of the amount of time and attention which Mr. Busch had devoted to the railroads, including his services in inducing the location of new industries on their lines. Prior to federal control, he said, Mr. Busch had been paid \$4,800 a year and in April, 1918, when Director General McAdoo made his famous separation of the operating and corporate officers, he had cut off his salary, which was restored in 1919 at the rate of \$2,400 a year.

P. J. Doherty, attorney-examiner for the commission, questioned both Mr. Busch and Mr. Cotter in detail as to what they did to earn their salaries and how much time they spent at the work. He said that the resolution of the directors relating to the \$25,000 stated that it was for additional services in connection with litigation before the Interstate Commerce Commission involving a claim against the East St. Louis & Suburban Railway, and he produced copies of the voucher and Mr. Cotter's receipt bearing a similar notation. Both Mr. Cotter and Mr. Busch stated that it had not been thought necessary to "put everything in the resolution" and that the money was intended as a recognition of Mr. Cotter's services in general, including his handling of the litigation, which, together with subsequent negotiations with other companies, led to an important increase in the divisions received out of coal rates.

When Mr. Doherty asked if the increased compensation had not been decided upon with reference to the probability of the St. Louis & O'Fallon having recapturable earnings, Mr. Busch said he knew nothing about the recapture clause and Mr. Cotter said that there was absolutely no relation between the matters, and that he had asked for and received the money in recognition of the results he had obtained in the management of the property. Mr. Doherty asked Mr. Busch if there had been any "agreement, understanding, trust or agency established with relation to the \$25,000 in Mr. Cotter's hands for the benefit of the corporation," to which Mr. Busch replied indignantly that he did not "do business that way" and that there were "no strings tied to the money." Mr. Cotter later made a similar statement.

When Mr. Busch said that Mr. Cotter devoted all his time to the two properties, Mr. Doherty asked if he had not received \$8,000 in 1923 as receiver of another railroad.

Mr. Busch said he did not know it but that it would be all right if he had. Later Mr. Cotter said that, while he devoted substantially all his time to the two roads, he had also served for several years as receiver of the Chicago, Peoria & St. Louis for \$3,600 a year, and that he was able to discharge the duties of the position at luncheon.

Mr. Doherty asked if the Railroad Administration had not ordered an increase from \$300 to \$1,000 a month in the charge made for the operation of the miners' train and if it did not involve 33,000 special train-miles a year. Mr. Cotter said that during the four months that the Terminal Railroad Association of St. Louis operated the property for the government it had marked the charge up to \$1,000 a month but that the increase had never been collected. He said the charge was in effect when he came to the property and that he had satisfied himself that it was too high if anything, rather than too low.

Railroads Reduce Supplies Carried in Stock

Preliminary reports show \$35,000,000 in unapplied materials on class I roads

RAILROADS of the United States had over \$35,000,000 less capital tied up in unapplied material and supplies at the close of 1925 than at the close of 1924, and in fact less than at the end of any year since 1917, judging from a summary made of reports of Class I roads to the Interstate Commerce Commission.

It was forecast by the *Railway Age* in its annual statistical number, issued January 2, 1926, that the final figures would show reduction in the volume of stock carried by railroads in 1925. The summary which has been prepared from statistics of practically all the Class I railroads shows the total value of material carried in stock at the close of 1925 to be \$523,627,546 as compared with \$559,295,832 for the same roads at the close of 1924, a decrease of \$35,668,286. This is a smaller decrease than occurred in the previous year when there was a reduction in the stock balance of approximately \$122,000,000, but indicative of the continuing attention being given to the elimination of surpluses in stock. The volume of stocks carried by the Class I roads at the close of each year since 1916 and the decreases or increases are given in Table I.

TABLE I—SUPPLIES ON CLASS I RAILROADS 1916 TO 1925

Year	Stocks on hand end of year	Decrease from previous year	
1916.....	\$323,556,387		
1917.....	502,986,042	\$179,429,655**	increase
1918.....	630,207,210*	127,221,168**	increase
1919.....	597,573,735*	35,633,475	decrease
1920.....	755,563,278	157,989,543**	increase
1921.....	665,147,099	99,415,179	decrease
1922.....	546,284,853	118,862,246	decrease
1923.....	682,725,812	136,440,959**	increase
1924.....	560,048,899	122,676,913	decrease
1925.....	559,295,832**		
1925.....	523,627,546†	35,668,286	decrease

*Estimated for Class I railways in years of government operation on the basis of stocks held by all railways, as shown by Interstate Commerce Commission reports.

**Total for roads given in Table II.

Table II shows the list of roads included in the summary of conditions for 1925. In developing this table, recognition has been given to the fact that in many instances the supplies carried in stock by one corporate property are in part or whole available to other corporate properties, and that the supplies reported separately for several companies are in reality acquired and handled by the same organization, etc. To compensate for such conditions and in order that the figures reported should more nearly represent actual conditions the plan has been followed as far as practicable of consolidating the stocks of material by systems. The principal cases in which consolidations have been made are as follows:—

Atchison, Topeka & Santa Fe Lines, comprising the Atchison, Topeka & Santa Fe Company, the Gulf, Colorado & Santa Fe and the Panhandle & Santa Fe.

Atlanta & West Point Lines, comprising the Atlanta & West Point, the Georgia Railroad and the Western Railway of Alabama.

Atlantic Coast Lines, comprising the Atlantic Coast Line and the Charleston & West Carolina.

Baltimore & Ohio Lines, comprising the Baltimore & Ohio, the Baltimore & Ohio Chicago Terminal, and the Staten Island Rapid Transit.

Chicago, Rock Island & Pacific Lines, comprising the Chicago, Rock Island & Pacific, and the Chicago, Rock Island & Gulf.

Cleveland, Cincinnati, Chicago & St. Louis Lines, comprising the Cleveland, Cincinnati, Chicago & St. Louis, the Cincinnati Northern and the Evansville, Indianapolis & Terre Haute.

Erie Lines, comprising the Erie, the Chicago & Erie, the New Jersey & New York, and the New York, Susquehanna & Western.

Gulf Coast Lines and International-Great Northern.

Illinois Central Lines comprising the Illinois Central, the Gulf & Ship Island, and the Yazoo & Mississippi Valley.

Kansas City, Mexico & Orient Lines, comprising the Kansas City, Mexico & Orient and the Kansas City, Mexico & Orient of Texas.

Kansas City Southern Lines, comprising the Kansas City Southern, and the Texarkana and Ft. Smith.

Louisville & Nashville Lines, comprising the Louisville & Nashville and the Louisville, Henderson & St. Louis.

Soo Lines, comprising the Minneapolis, St. Paul & Sault Ste. Marie and the Duluth, South Shore & Atlantic.

Missouri-Kansas-Texas Lines, comprising the Missouri-Kansas-Texas, the Missouri-Kansas-Texas of Texas.

New York, New Haven and Hartford Lines, comprising the New York, New Haven & Hartford and the Central New England.

Reading Lines, comprising the Reading, the Atlantic City and the Port Reading.

St. Louis Southwestern Lines, comprising the St. Louis Southwestern and the St. Louis Southwestern of Texas.

Southern Lines comprising the Southern, the Alabama Great Southern, the Cincinnati, New Orleans & Texas Pacific, the New Orleans & Northeastern and the Northern Alabama.

Southern Pacific Lines, comprising the Southern Pacific, Pacific System, the Galveston, Harrisburg & San Antonio, the Houston & Texas Central, the Houston, East & West Texas, the Louisiana Western, Morgan's Louisiana & Texas, the Texas & New Orleans and the San Antonio, Uvalde & Gulf.

Reductions on 67 Systems

For comparative purposes the value of material and supplies on hand at the close of 1925 is given for each system, and also the value of the material and supplies on hand at the close of the preceding year, determined on the same basis. The summary shows that out of 107 systems there were reductions in stock on 67 and increases on 33. There are 45 railroads or groups of railroads with annual operating revenues exceeding \$25,000,000. There were reductions in stock on 31 of these roads while on 14 there were increases.

By far the largest reduction in stock is shown on the Pennsylvania where the material balance at the close of 1925 was almost \$15,000,000 less than at the close of 1924. Next to the Pennsylvania is the Atchison, Topeka & Santa Fe, with a reduction in excess of \$3,000,000 while the Union Pacific Lines, the New York Central and the Chicago & North Western show reductions in excess of \$2,000,000 each. Reductions exceeding \$1,000,000 are also shown for the Chicago, Burlington & Quincy, the Baltimore & Ohio, the Boston & Maine, the Chesapeake & Ohio, the New York, New Haven & Hartford, the Norfolk & Western, the Northern Pacific and the Southern Pacific.

There has been much criticism of the ratio which the material and supplies carried in stock by railroads bears to their annual operating expenses as a measure of the stock carried. It is commonly objected that this ratio

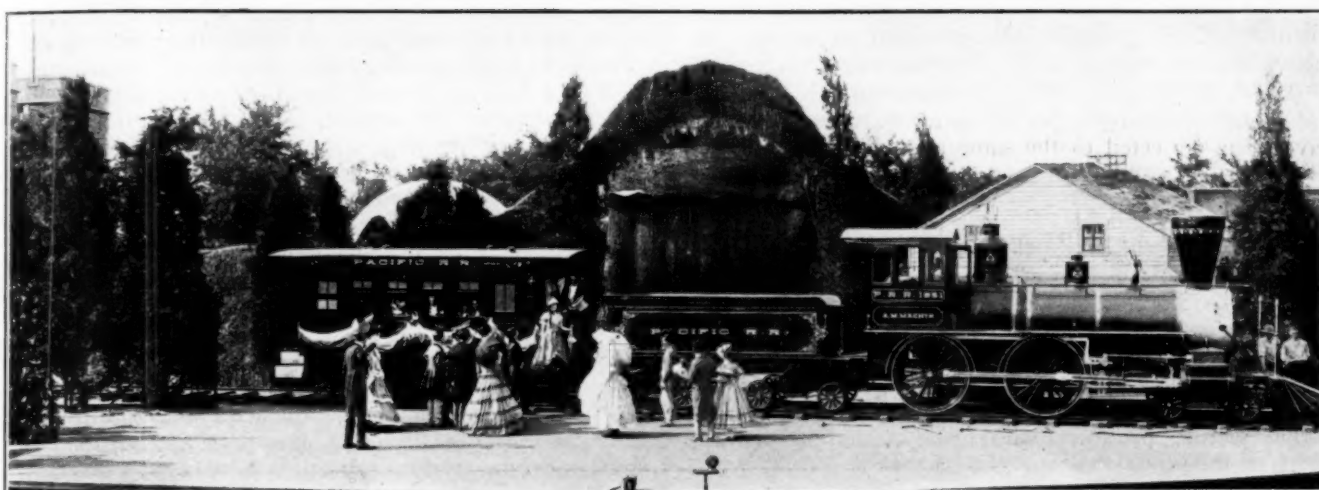
is more likely to be an unfair than a just measure of a road's efficiency in handling and controlling its supplies. On account of the prevalence of the practice of using this ratio, however, it is used here. In every instance the annual operating expenses of the various properties have been subjected to the same grouping and consoli-

TABLE II—MATERIAL AND SUPPLIES CARRIED BY RAILWAYS ON DEC. 31, 1924 AND 1925

	On hand		Difference	Ratio to operating expenses	
	Dec. 31, 1925	Dec. 31, 1924		1925	1924
Akron, Canton & Youngstown.....	\$165,328	\$145,442	\$19,886	8.5	8.4
Alabama & Vicksburg Lines.....	791,535	805,907	-14,372	13.1	13.1
Ann Arbor.....	515,831	511,053	4,778	11.6	11.9
Atchison, Topeka & Santa Fe Lines.....	24,447,535	27,580,741	-3,133,206	14.9	16.1
Atlanta & West Point Lines.....	1,465,302	1,378,346	86,956	15.2	14.6
Atlanta, Birmingham & Atlantic.....	911,136	599,645	311,491	18.1	13.6
Atlantic Coast Line.....	7,711,515	6,913,586	797,929	11.4	10.8
Baltimore & Ohio Lines.....	19,587,780	21,230,147	-1,642,367	10.8	12.0
Bangor & Aroostook.....	973,081	1,020,490	-47,409	19.7	20.0
Bessemer & Lake Erie.....	713,450	794,486	-81,036	7.2	7.0
Boston & Maine.....	6,664,665	8,582,926	-1,918,261	10.5	13.4
Buffalo & Susquehanna.....	181,132	219,804	-38,672	12.0	11.2
Buffalo, Rochester & Pittsburgh.....	1,726,548	1,653,156	73,392	12.5	12.2
Central of Georgia.....	1,992,304	1,915,666	76,638	8.8	9.0
Central of New Jersey.....	4,752,191	4,863,974	-111,783	11.5	12.3
Central Vermont.....	809,355	626,389	182,966	10.8	9.0
Chesapeake & Ohio.....	6,292,177	7,495,272	-1,203,095	7.1	9.0
Chicago & Alton.....	1,209,866	1,717,996	-508,130	5.1	7.2
Chicago & Eastern Illinois.....	1,730,565	2,341,393	-610,828	7.8	10.4
Chicago & North Western.....	13,530,679	15,941,088	-2,410,409	11.7	12.7
Chicago, Burlington & Quincy.....	15,896,613	17,187,629	-1,291,016	14.3	14.3
Chicago Great Western.....	1,240,229	1,190,471	49,758	6.3	5.8
Chicago, Indianapolis & Louisville.....	1,331,422	1,442,781	-111,359	10.3	11.6
Chicago, Milwaukee & St. Paul.....	13,987,266	13,575,288	411,978	10.7	10.7
Chicago, Rock Island & Pacific Lines.....	11,404,616	11,552,980	-148,364	11.4	11.4
Chicago, St. Paul, Minn. & Omaha.....	2,256,368	2,239,278	17,090	10.3	10.1
Cincinnati, Indianapolis & Western.....	252,758	228,262	24,496	6.4	6.0
Cleveland, Cin., Chi., & St. Louis.....	7,100,359	7,207,874	-107,515	9.9	10.1
Colorado & Southern.....	1,254,467	1,201,610	52,857	12.8	10.5
Columbus & Greenville.....	198,425	277,717	-79,292	13.6	19.0
Delaware & Hudson.....	3,433,507	4,080,964	-647,457	10.1	11.1
Delaware, Lackawanna & Western.....	4,297,274	4,871,979	-574,705	6.9	7.5
Denver & Rio Grande Western.....	3,146,487	3,809,294	-662,807	12.7	13.3
Denver & Salt Lake.....	407,826	362,547	45,279	13.0	...
Detroit & Mackinac.....	369,795	480,813	-111,018	24.4	30.0
Detroit & Toledo Shore Line.....	179,689	185,579	-5,890	8.4	9.6
Detroit, Toledo & Ironton.....	917,754	592,864	324,890	10.8	7.8
Duluth & Iron Range.....	607,497	823,858	-216,361	12.8	16.8
Duluth, Missabe & Northern.....	1,320,311	1,703,422	-383,111	16.0	22.4
Elgin, Joliet & Eastern.....	1,562,185	1,429,733	132,452	9.0	9.3
Erie Lines.....	11,587,095	11,930,380	-343,285	11.7	11.7
Florida East Coast.....	4,267,002	2,888,821	+1,378,181	21.4	20.8
Fort Smith & Western.....	175,160	210,020	-34,860	12.6	14.8
Fort Worth & Denver City.....	1,047,100	820,409	226,691	14.6	12.2
Georgia & Florida.....	195,985	158,975	37,010	14.5	12.0
Great Northern.....	9,942,816	9,799,070	143,746	13.1	13.0
Green Bay & Western.....	334,337	312,011	22,326	33.2	27.1
Gulf Coast and International Great Northern.....	3,885,631	3,884,359	1,272	16.8	18.0
Gulf, Mobile & Northern.....	413,945	422,512	-8,567	9.5	9.7
Hocking Valley.....	1,231,849	1,138,725	93,124	8.6	8.6
Illinois Central Lines.....	14,320,928	13,399,121	921,807	10.5	9.8
Kansas City, Mexico & Orient Lines.....	681,151	463,363	217,788	13.9	9.4
Kansas City Southern Lines.....	1,873,738	2,061,806	-188,068	12.9	13.2
Kansas, Oklahoma & Gulf.....	162,780	201,149	-38,369	7.0	10.4
Lake Superior & Ishpeming.....	304,882	320,495	-15,613	21.0	23.6
Lehigh & Hudson River.....	181,957	203,425	-21,468	8.1	9.1
Lehigh & New England.....	480,678	528,723	-48,045	11.8	12.7
Lehigh Valley.....	6,906,603	6,880,421	26,182	12.0	11.3
Long Island.....	2,107,418	2,631,329	-523,911	7.8	9.9
Louisiana & Arkansas.....	396,704	381,652	15,052	14.6	12.8
Louisiana Ry. & Navigation Lines.....	415,282	561,129	-145,847	9.7	11.6
Louisville & Nashville Lines.....	14,911,507	14,411,328	500,179	13.4	13.2
Maine Central.....	1,920,367	2,001,528	-81,161	12.2	12.1
Michigan Central.....	5,973,799	6,640,876	-667,077	9.7	10.7
Midland Valley.....	211,657	215,806	-4,149	7.6	7.2
Minneapolis & St. Louis.....	1,731,912	1,869,020	-137,108	13.2	14.7
Soo Lines.....	5,016,394	5,509,843	-493,449	12.3	13.2
Mississippi Central.....	123,393	137,280	-13,887	11.0	10.2
Missouri - Kansas - Texas Lines.....	6,278,585	6,353,075	-74,490	15.8	16.0
Missouri Pacific.....	11,749,654	12,007,235	-257,581	11.4	12.3
Mobile & Ohio.....	1,392,036	1,409,830	-17,794	10.0	9.9
Monongahela.....	360,304	521,555	-161,251	11.5	17.9
Montour.....	215,364	271,220	-55,856	21.2	19.0
Nashville, Chattanooga & St. Louis.....	2,630,150	2,597,932	32,218	13.7	13.3
Nevada Northern.....	160,036	185,350	-25,314	27.0	34.0
New Orleans Great Northern.....	156,121	201,343	-45,222	7.8	9.8
New York Central.....	35,167,842	37,792,458	-2,624,616	12.1	13.5
New York, Chicago & St. Louis.....	4,381,087	3,024,244	1,356,843	11.0	7.6
New York, New Haven & Hartford.....	13,731,137	15,035,152	-1,304,015	13.2	15.4
New York, Ontario & Western.....	1,716,101	1,797,336	-81,235	16.6	16.2
Norfolk & Western.....	12,027,043	13,235,509	-1,208,466	17.6	19.0
Norfolk Southern.....	534,515	590,128	-55,613	8.0	8.5
Northern Pacific.....	10,935,207	12,196,206	-1,260,999	15.6	17.3
Northwestern Pacific.....	750,290	831,749	-81,459	14.4	16.0
Pennsylvania Lines.....	45,912,515	60,808,668	-14,896,153	8.5	11.7
Pere Marquette.....	3,055,392	3,682,254	-626,862	9.9	11.9
Pittsburgh & Lake Erie.....	3,227,228	3,563,838	-336,610	12.6	13.9
Pittsburgh & Shawmut.....	106,101	122,319	-16,218	10.0	11.2
Pittsburgh & West Virginia.....	192,913	235,314	-42,402	6.5	8.1
Pittsburgh, Shawmut & Northern.....	241,320	258,068	-16,748	14.8	16.6
Reading Lines.....	10,273,624	9,663,816	609,808	13.9	12.7
Richmond, Fredericksburg & Potomac.....	1,398,752	1,465,973	-67,221	17.0	18.6
Rutland.....	1,024,025	894,265	129,760	18.7	16.3
St. Louis-San Francisco.....	5,191,881	4,657,848	534,033	8.3	7.7
St. Louis Southwestern Lines.....	4,266,393	3,597,841	668,552	21.2	18.7
Seaboard Air Line.....	5,449,110	4,322,995	1,126,115	11.6	10.4
Southern Lines.....	15,187,909	15,715,941	-528,032	11.2	11.8
Southern Pacific Lines.....	31,965,835	33,077,989	-1,112,154	14.8	17.0
Spokane, Portland & Seattle.....	789,655	727,235	62,420	15.0	13.7
Tennessee Central.....	282,717	227,436	55,281	11.7	10.2
Texas & Pacific.....	3,952,931	4,072,950	-120,019	14.9	16.0
Trinity & Brazos Valley.....	340,613	332,098	8,515	13.0	13.8
Union Pacific Lines.....	16,769,530	19,441,089	-2,671,559	11.8	13.4
Virginian.....	3,786,449	3,743,184	43,265	32.0	30.1
Wabash.....	4,660,085	4,196,487	463,598	9.1	8.2
Western Maryland.....	2,275,724	2,605,680	-329,956	16.3	18.4
Western Pacific.....	1,835,233	1,879,871	-44,638	16.1	16.4
Wheeling & Lake Erie.....	1,004,727	998,132	6,595	6.9	6.9
Wichita Valley.....	112,519	188,192	-75,673	12.6	12.5

dations made in determining the total amounts of supplies carried. The summary discloses ratios ranging from 6 per cent of the annual operating expenses to 30 per cent and over. It is interesting to note, however, that for the 107 roads or groups of roads involved, 61 roads disclose reduction in ratios as compared with 67 instances in which reductions were made in the actual value of material carried,—also that in numerous cases the reductions in the ratio are shown on roads which had their ratios of unapplied material to annual operating expenses below 10 per cent in 1924.

THE GREAT NORTHERN is using wind power in the prairie country of Montana and North Dakota for charging storage batteries to operate electric block signals. The present method of harnessing the wind by letting the windmills operate whenever the wind blows and storing the electrical energy in batteries where it may be used at all times overcomes the difficulty that was experienced in the early days of the road when the windmills were used to pump water which could only be stored to the extent of the tank capacity.



Replica of Early Locomotive and Car Built by Missouri Pacific Employees

Missouri Pacific Stages Celebration

Observes 75th Anniversary With Pageant at St. Louis With Employees as Participants

THE most novel, spectacular and beautiful celebration of the birthday of an American railway ever held was staged in St. Louis from July 4 to 11, in commemoration of the breaking of ground on July 4, 1851, for the beginning of construction of what is now the Missouri Pacific Railroad. Invitations to attend a pageant, on July 11, provided by the railroad and its employees and a banquet given by the railroad, were extended to railroad officers and business men throughout the country.

The pageant, which was given every night for a week in the stadium of Washington University, was open to the public and was witnessed nightly by great crowds. There were about 1,700 guests at the dinner at the Hotel Chase, including the employees who had participated in the pageant, and officers of numerous railways.

Missouri Pacific Departments Co-operated

The celebration, and especially the pageant and the fantasy, with which it was followed each night, were unique in many respects and proved, as the crowds attending showed, to have a powerful popular appeal. Staged with all of the elaborate scenic, lighting and costuming effects of the best professional productions, it was difficult for spectators to believe that employees of the railroad furnished virtually the entire personnel.

The engineering department designed and constructed, or rather supervised the construction, of the stage and settings. Some idea of the work involved can be derived from the fact that more than seven car loads of lumber went into the great stage and four car loads of Ozark pine trees were transplanted bodily to furnish a background for the presentation. The engineering department also furnished a large quota of members of the cast.

The purchasing department handled all of the details involving the expenditure of funds, and also furnished numerous members of the cast.

Typical of the entire affair is the story of the construction of a replica of the first locomotive and train operated west of the Mississippi river. With nothing

but an old photograph from which to work, approximately 200 employees of the Missouri Pacific Lines back shops at North Little Rock, Ark., volunteered their assistance, and, reporting for work in the early dawn of Sunday, June 19, practically finished by nightfall a creation of wood and steel that from a distance of a few feet could not be told from the real article. They made their contribution in the same spirit of pride and loyalty that prompted nearly 1,000 employees in the general offices in St. Louis to rehearse night after night through sweltering heat and carry on their routine tasks daily while the production was in process of preparation.

A thing that impressed every person who had an opportunity to come in close contact with the celebration was the tireless loyalty, enthusiasm and pride of every employee for whom a part could be found. This spirit extended from officers of the highest rank to mechanics, laborers and even junior clerks and office boys. General officers from the legal, operating, traffic and accounting departments, stenographers, mechanics from the round houses and switchmen from the yards were included in the cast of the pageant and fantasy.

The banquet at the Hotel Chase was served by the dining department of the railroad. The food-stuffs were selected at points along the line and prepared by the chefs and cooks of the Missouri Pacific. Dining car stewards and waiters attended to the serving, and waiters journeyed from points such as Little Rock and Kansas City to help. The business car "boys" of the company served the speakers' table. The toastmaster was E. H. McReynolds, editor of the Missouri Pacific Magazine, who is given a great part of the credit for the success of the celebration.

It appears that the original suggestion for a fitting celebration of the 75th anniversary of the breaking of ground for the old Pacific Railroad was made by F. P. Johnson, vice-president in charge of finance and accounting. This led to a recommendation by a committee embodying the essential details of what finally was done. The committee was composed of W. G. Vollmer, assist-

ant to president; E. J. White, vice-president and general solicitor; F. P. Johnson, vice-president in charge of finance and accounting; C. E. Perkins, vice-president in charge of traffic; J. G. Drew, vice-president; J. Cannon, general manager; J. E. Anderson, assistant to executive vice-president Texas Lines, and E. H. McReynolds, editor of the Missouri Pacific Lines Magazine. An executive committee composed of Messrs. Vollmer, White, Johnson and McReynolds supervised closely all of the details of the production.

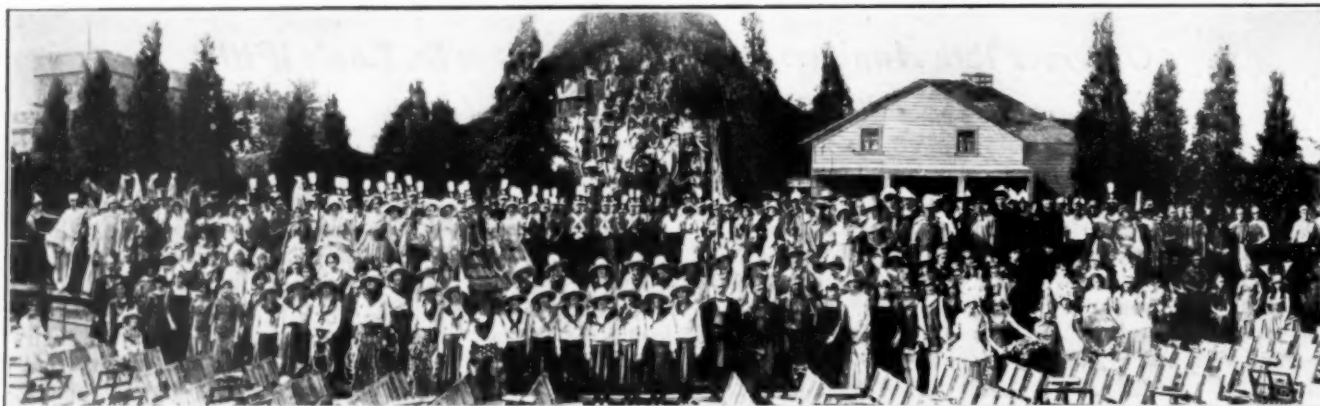
A small professional organization consisting of a director, a decorator, a musical director, a chorus instructor, a dance director an expert in charge of designing and manufacturing the costumes and a lighting expert was engaged. Later there were included in this group a radio expert and an amplifier expert, and a motion picture producer who made a motion picture record of the production but who had nothing to do with the production itself.

Probably 200,000 Witnessed Pageant

Because of the co-operation of the employees it is said the cost of the production was comparatively small, but that it would have cost any concern compelled to pay

The production was divided into two parts. The first part, in twelve episodes, pictured vividly the development of transportation, opening with aboriginal Indians engaged in a festival dance. One fault of most pageants was eliminated by the creation of the part for an interpreter who, after reciting a heroic prologue, described step by step in advance the action and development of the "plot" unfolded so that everybody could clearly understand what was being represented. The amplifiers were used very successfully for transmitting to the large audiences the several spoken parts, including such as a reproduction of the setting and famous speech in favor of a transcontinental railroad delivered by Thomas H. Benton, United States Senator from Missouri, at a historic convention held in St. Louis in 1849.

Following the opening scene, the action moved through successive episodes depicting the development of the trading post, the establishment of post roads and taverns, the coming of the stage coach and pony express, the covered wagon trains and then through the days of agitation for railroads. A genuine stage coach, preserved as a relic by the city of Pittsburg, Kans., was borrowed for the occasion and used in the scene wherein that stage of the development of transportation was pictured. Like-



Missouri Pacific Officers and Employees in Their Pageant Costumes

market prices for everything in excess of \$200,000 to produce.

Hundreds of obstacles were encountered and overcome. When a tentative musical score had been arranged it was found that none of the 15 employee bands on the railroad could successfully negotiate all of it, either because of lack of proper instrumentation or the inexperience of the band organization. Even efforts to combine two bands failed to produce the desired result, so the professional musical director made a trip over the lines and personally selected from all of the bands 80 musicians who were welded into a composite band orchestra that provided a musical accompaniment that delighted the eight huge audiences that witnessed the performances.

The "Plot"

As a result of increasing the seating capacity of the Washington University football stadium approximately 25,000 were seated nightly while thousands stood, and probably 200,000 persons witnessed the performances.

Employees in the general office building in St. Louis organized a mixed chorus of 150 voices, and this, augmenting the orchestra, provided a complete musical organization. Both the huge chorus and the great composite orchestra occupied the "pit" in front of the stage, and the numbers rendered by them, with special lighting effects, were worthy of a professional organization.

wise, the covered wagon used was an exact replica of those of pioneer days and not the exaggerated type of the movies.

One of the most brilliant and colorful scenes in the production was the reproduction of the ceremony on July 4, 1851, when amid pomp and colorful pageantry, ground was broken for the beginning of the line. Costumes of the pre-civil war days were duplicated, and guided by old newspaper accounts the whole ceremony was re-enacted, even including the speeches, which were copied verbatim from contemporary newspaper accounts.

Following that scene a railroad was built across the stage and the replica of the first train was operated over it with remarkable realism, the little old engine leaking steam like a tea-kettle.

The civil war period was depicted with the Confederate and then the Union soldiery marching away to war, following which was a scene showing the destruction wrought by Price's raiders who virtually demolished the old Pacific railroad between St. Louis and Jefferson City.

Then, the audience was carried to Wall street to witness Jay Gould addressing a group of his associates and outlining his great dream of a transcontinental railroad. As he spoke an animated map grew on a screen above his head, and when he finished there was vividly before the audience a picture of what he was trying to accomplish.

A beautiful scene containing a real heart appeal was that which followed in which the benevolent influence of Miss Helen Gould (now Mrs. Finley Shepard), was shown with a stenographer from the president's office enacting the part of Miss Gould standing on the rear platform of her father's business car, surrounded by admiring workmen of the railroad.

The pageant ended with a picture illustrating the continued growth and development of the Missouri Pacific system until the animated map showed the lines as they appear today.

"A Court of Transportation"

The second part, or fantasy, was an entertainment entitled "A Court of Transportation." It was presided over by figures representing Uncle Sam and Miss Columbia, each mounted on great thrones atop high pedestals. Figures representing kings and queens entered and took their places until the court was completed. A mailed knight represented St. Louis. A queen, named "Heart of America," represented Kansas City. A well trained ballet executed a garland dance as a part of the entrance scene, and in order there entered Queen Wheat representing Kansas, King Corn representing Nebraska, Queen Coal representing Illinois, King Timber representing Louisiana, Queen Petrolia, representing Arkansas and King Cattle representing Texas. Each was accompanied by retainers appropriately and beautifully costumed and in the court of each king and queen there appeared a group of entertainers. Accompanying King Corn was a ballet of 24 girls garbed to represent corn who executed a dance emblematic of a field of growing corn. Timber, representing Louisiana, was accompanied by a troupe of carnival spirits recalling the Mardi Gras.

King Cattle of Texas entered astride a cow pony and accompanied by four mounted Texas rangers followed by a drill team composed of 24 stenographers garbed as cowboys and cowgirls. Following Texas came Mexico, represented by a Mexican band in a typical gorgeous costume, from the Missouri Pacific Lines shops at Kingsville, Tex., and accompanied by the ballet, garbed this time as Mexican señores and señoritas.

The closing "smash" was cleverly executed. After a small army of employees representing the several branches of railway service had marched in in company formation, a huge wheel, the emblem of transportation, which had served as a background to the scene, was replaced by a silver screen on which was flashed a silhouette of the first locomotive which faded out into a picture of the Missouri Pacific's train, the Sunshine Special, with the legend, "75 Years of Service." That picture faded out into a view of a piece of well ballasted track down which, at a distance, appeared an on-rushing train.

Just as the train appeared to be about to jump off the screen, a replica of a Mountain type passenger locomotive burst through the screen and down into the center of the stage.

The Banquet

Because the guests had previously to attend the pageant, the banquet at the Hotel Chase on Saturday night did not begin until 11:30 p.m., and lasted until well into the next morning. The speaking program included a number of addresses dwelling on the important part that railroads in general and the Missouri Pacific in particular, have played in American history, and was concluded with a brief address by L. W. Baldwin, president of the Missouri Pacific, who especially thanked the employees of the railway for all they had done to make the celebration a success.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended July 3 amounted to 1,072,624 cars, an increase of 10,372 cars as compared with the preceding week. As compared with the corresponding week of last year there was an increase of 206,425 cars but the figures for last year include the effect of the Fourth of July holiday, which makes all comparisons misleading. Increases as compared with the preceding week were shown in the loading of grain and grain products, ore, merchandise and miscellaneous freight, while decreases were shown in livestock, coal, coke and forest products. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING, WEEK ENDED SATURDAY, JULY 3, 1926.

Districts	1926	1925	1924
Eastern	256,012	204,550	178,410
Allegheny	217,127	180,116	154,098
Pocahontas	56,304	42,360	32,094
Southern	148,190	126,663	110,579
Northwestern	164,123	129,630	113,929
Central Western	152,472	118,839	116,236
Southwestern	78,396	64,041	52,558
Total Western Districts	394,991	312,510	282,723
Total all roads	1,072,624	866,199	757,904
Commodities			
Grain and grain products	51,989	33,954	34,717
Live stock	26,353	24,214	24,864
Coal	172,713	135,355	109,398
Coke	11,666	8,508	6,687
Forest products	70,550	58,762	51,270
Ore	73,103	55,127	48,844
Mdse. L. C. L.	266,228	225,202	207,334
Miscellaneous	400,022	325,259	274,790
July 3	1,072,624	866,199	757,904
June 26	1,062,252	993,173	908,251
June 19	1,043,720	984,583	903,546
June 12	1,060,214	989,873	902,592
June 5	945,964	998,243	910,793
Cumulative total 27 weeks	26,109,088	25,194,689	23,943,056

The freight car surplus for the week ended June 30 averaged 254,807 cars, a decrease of 15,355 cars as compared with the week before. This included 69,869 coal cars and 140,421 box cars. The Canadian roads for the same period had a surplus of 23,259 cars, including 20,700 box cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended July 3 were down 7,422 cars from the previous week owing to national holiday (July 1). Compared with the same week last year there was an increase of 9,690 cars and with the same week in 1924 an increase of 7,478 cars.

Commodities	Total for Canada			Cumulative totals to date	
	July 3, 1926	June 26, 1926	July 4, 1925	1926	1925
Grain and grain products	5,607	6,970	5,151	182,801	154,417
Live stock	1,771	1,687	2,128	51,493	56,742
Coal	5,798	6,718	1,443	126,100	87,023
Coke	345	280	256	10,464	7,141
Lumber	3,790	4,456	3,442	91,876	89,421
Pulpwood	2,564	2,232	1,962	79,388	77,482
Pulp and paper	2,169	2,202	1,678	65,510	54,191
Other forest products	2,987	3,466	2,749	87,293	77,375
Ore	1,820	1,518	1,349	40,317	33,652
Merchandise, L. C. L.	14,860	17,386	13,780	410,637	389,603
Miscellaneous	14,744	16,962	12,827	339,464	297,559
Total cars loaded	56,455	63,877	46,765	1,485,343	1,324,606
Total cars received from connections	40,283	37,358	31,509	971,636	862,305

COLOR LIGHT SIGNALS are now in use on the Southern Railway throughout its line from Washington, D. C., to Birmingham, Ala., 800 miles (637 miles double track) and the company announces that the completion of this line makes the longest continuous installation of such signals in existence; all operated by alternating current and fed from a power transmission line of the same length.

Train Control Installations Approved

Devices on C. M. & St. P., and Northern Pacific Found to Meet Requirements With Exceptions

WASHINGTON, D. C.

THE Interstate Commerce Commission on July 9 issued reports by Division 1, Commissioners Esch, McManamy and Taylor, approving, with certain exceptions in respect of apparatus and operations, the installation of the Union Switch & Signal Company's automatic train-stop of the continuous induction type on the River division of the Chicago, Milwaukee & St. Paul, and that of the intermittent magnetic induction type of the Sprague Safety Control & Signal Corporation on the first subdivision of the Yellowstone division of the Northern Pacific.

Chicago, Milwaukee & St. Paul

The device installed on the Chicago, Milwaukee & St. Paul is an automatic train-stop system of the continuous induction type. It was first placed in service in January, 1925, on a preliminary section of the Chicago, Milwaukee & St. Paul between Bridge Switch, Minn., and Winona, 21 miles, double track, with 10 equipped locomotives. A preliminary inspection of the test installation was made in September, 1925, by representatives of the Bureau of Signals and Train Control Devices and a report as to the results of this inspection made to the carrier on November 9, 1925.

The installation inspected and tested was placed in service March 2, 1926. It extends from a point 5,800 feet west of Bridge Switch, Minn., to the west end of Hastings Yard, Minn., a distance of 108.1 miles, double track, with 58 equipped locomotives. Cut-in and approach sections are provided eastward at Hastings, and westward at Bridge Switch, Minn.

The cost of this installation, as reported by the carrier, covering wayside and locomotive equipment as hereinafter described, is as follows:

1. Total cost of roadway equipment of train control installation, less power lines and power apparatus, if any, and less signals or cost of change in existing signal system less salvage	\$42,718
2. Total cost of power lines and power apparatus, less salvage ..	none
3. Cost of additional cut sections installed to improve operation of existing signal system	35,563
4. Total cost of change in existing signal systems made necessary by train control, less salvage	3,095
5. Total cost of testing equipment at Milwaukee, La Crosse and Minneapolis terminals	11,639
Total cost of roadway installation	93,014
Total cost of locomotive equipment, installed	112,322
Total cost of installation	\$205,336

Exceptions from Specifications

As a result of this inspection and test, it was found that the installation meets the requirements of the specifications and order, except as noted below, and, therefore, is approved, except as hereinafter indicated:

1. In this installation the cut-in circuits are, in effect, acknowledgment loops, operated on the open circuit principle, but with provision for the persistence of a red cab signal indication to apprise an engineman of any failure of the device to assume a clear condition prior to entering train stop territory. A further precautionary measure has been provided by locating repeater lights in the offices at Bridge Switch and Hastings. The cut-in circuits, however, were not at the time of inspection, in all cases long enough to insure the necessary pick-up, and this condition should be corrected at once.

2. Since the closing of the headlight generator throttle or the moving of the main switch to the "off" position makes it possible for a train to proceed over equipped territory with the train stop device inoperative provision must be made at

once to insure that locomotives are not run over any part of train control territory with the headlight generator inoperative. Further, the main switch controlling the electrical equipment should be sealed in the "on" position.

3. While making a continuity test during the inspection, an improper indication was received near the crossover at Whitman, further test developing the fact that the switch box binding post connecting the lead to the south rail of the westward track was grounded through the switch box, thereby making direct connection through the switch box connecting rod to the north rail of the eastward track, current from the westward track flowing to the rail of the eastward track where it acted as a stray loop current and gave an improper pick-up to the train stop relay. The return path for this stray current was apparently through the ground.

Another condition of this kind was found during the inspection when at the crossover in the block of signal 27.0 the cab signal remained white (clear) when the test locomotive approached an open switch of this crossover. This condition appeared to be due to leakage through poorly insulated joints. Adequate means must be employed for obtaining and maintaining effective track-circuit insulation.

4. A fouling test was made at the trailing switch at the east end of the eastward passing siding at Whitman. With a car placed on the switch lead so that three pairs of wheels fouled the main line, an approaching locomotive, eastbound, held a red cab indication to a point 927 feet west of this car. The cab indication then changed to white (clear) and remained white until the locomotive was as near to the car as it was possible to go. At this particular location it is doubtful whether shunting by a train can be successfully accomplished for the reason that the track current is supplied to the rails so close to this switch, and some effective means should be substituted for accomplishing the desired result.

5. Should a locomotive pass an interlocked home signal at stop with the track clear in the section the use of which is governed by this home signal, the cab indication would be "clear" (white). The train stop circuit should be so arranged at interlockers that when a locomotive passes a home signal displaying a stop indication, the cab signal will also display a stop or red indication even though the route or track sections governed by the signal be unoccupied and the derails properly closed.

6. The branch line locomotives operating between Midland Junction and Wabasha, Minn., and those operated between Cannon Junction and Red Wing, Minn., must be equipped with the train-stop device and operated thereunder.

The Chicago, Milwaukee & St. Paul is expected to comply at once with all of the above-stated requirements.

Maintenance, Tests, Inspections

The Chicago, Milwaukee & St. Paul is expected to comply with the following requirements as to maintenance, tests, inspection, reports, etc.

1. Irregularities in the operation of switch boxes were found at 24 different locations; these boxes failing to open or close the loop circuits, or to effectively shunt the train control track circuits.

These cases indicate that since switch boxes and their connections to the track rails constitute a shunt circuit which if open or varied in value may affect the operation of the train control system under the circumstances described, they must, if depended upon, be so constructed, installed, inspected and maintained as to afford safeguards in accordance with the best engineering practice, to the end that the possibilities of a false clear failure may be reduced to a minimum. In other words, the installation must be such at all times that an open switch will initiate an automatic brake application, or impose a red cab indication at such distance from the switch as to insure protection, maintaining this red cab indication to a point from which the speed of the train cannot be so increased as to introduce an element of danger. Should this arrangement be found unsatisfactory or impracticable to maintain, other means of protection must be applied.

2. It is suggested that the ballast conditions of the track

be improved so as to provide a greater degree of protection against grounds and leaks, and permit the track and loop circuit energy to be reduced to a lower potential than now obtains at various locations. The possibility of stray currents entering the track rails would also apparently be reduced by the elimination of contact between the ballast and the rails.

3. Instructions, reports, and records in effect at the time of the inspection relative to tests of locomotives and roadside apparatus should be consistently observed and continued; all reports to be made on forms provided for that purpose and regularly forwarded by the inspectors to a designated officer.

Suggestions

The attention of the Chicago, Milwaukee & St. Paul is directed to the following matters:

1. It was noted that changes of cab indication occur at all cut sections and at all locations where the insulated joints are staggered, and that a train moving at a speed under 11 m.p.h., receives a brake application at these points unless the change of indication is acknowledged by the engineman.

It was also noted that at certain signal locations and cut sections, what is known as a "rear and flip" occurs when the rear end of the train passes over the insulated joints. This is due to the fact that these joints are so placed with relation to each other as to permit a momentary drop away and pick-up of the train-stop relay during the interval that adjacent track circuits are connected through the last pair of car wheels. While this condition does not require an acknowledgment by the engineman to prevent a brake application it does cause unnecessary changes of cab indication and unnecessary audible warnings. A following train entering an occupied track section, due to the same cause, sometimes causes a flip of the cab indicator on the preceding train. When the joints are opposite each other this does not occur and it is suggested that careful consideration be given to the question of the desirability of locating these insulated joints opposite each other at block or similar locations.

2. The adequacy of the protection at St. Peter Junction should be given consideration with a view to providing increased protection by shortening the dead sections of the crossing and checking the train stop circuits through the switch and derail levers.

3. The circuit for the control of the 90-degree position of the signals is carried through a circuit breaker on the signal in advance, this circuit breaker being closed when the signal stands at from 45 degrees to 90 degrees. It is not, however, carried through the track relay controlling the signal, except at two interlockers. In all but these two cases, therefore, a false clear signal would result in a false clear distant signal. It would not, however, result in a false train stop indication because the loop circuit is controlled by the track relay in addition to the signal circuit breaker. Consideration should be given to the question of breaking the 90 degree signal control wire through the track relay, so that the signal in the rear will assume the caution position should the signal in advance stick false clear with a train in the block.

4. It is suggested that consideration be given to a form of organization for train stop maintenance which will eliminate dual responsibility.

5. On April 9, 1926, the power was off the signal and train-stop system from 2:33 P.M. to 2:57 P.M., due to trouble on the power company's line. Dependence is placed upon manual operation to cut in the emergency source of power supply and consideration should be given to plans for providing adequate emergency sources of power supply which will automatically prevent power outages of such long duration.

The Chicago, Milwaukee & St. Paul is expected promptly and currently to inform us as to the progress made in conforming to all of the above stated requirements and recommendations.

The Northern Pacific Installation

The Northern Pacific device under consideration is an automatic train-stop of the intermittent magnetic induction type with forestalling feature. This device was first placed in service on the Northern Pacific, between Mandan and Judson, N. Dak., 21 miles, with 6 equipped locomotives. A preliminary inspection of this initial installation was conducted by representatives of the Bureau of Signals and Train Control Devices in April, 1925, and a report as to the result of this preliminary inspection was made to the carrier on May 8, 1925.

The installation inspected and tested was completed

in September, 1925. It extends from Mandan to Dickinson, N. Dak., 109.6 miles, single track. There are 34 equipped locomotives.

Cost

The cost of this installation to date, as reported by the carrier, covering wayside and locomotive equipment, and subject to possible unimportant revisions, is as follows:

Total cost of roadway equipment of train control installation, less power lines and power apparatus, if any, and less signals or cost of change in existing signal system, less salvage.....	\$43,786
Total cost of power lines and power apparatus, if any, less salvage.....	0
Total cost of signal system installed in connection with train control, less salvage.....	0
Total cost of changes in existing signal system made necessary by train control, less salvage (includes storage battery).....	6,560
Total all other roadway equipment cost, if any (approach lighting).....	5,336
Total cost of roadway installation.....	\$55,682
Locomotive equipment:	
Number of locomotives equipped.....	35
Cost per locomotive equipped.....	\$1,305
Total cost locomotive equipment installed.....	45,676
Total cost of experiments and investigations up to May 1, 1924, and changes by reason of modified Order 13413 of July 18, 1924.....	21,818
Grand total cost.....	\$123,176

As a result of this inspection and test, it is found that the installation meets the requirements of the commission's specifications and order except as noted below, and, therefore, it is approved except as hereinafter indicated.

Exceptions

Since it was demonstrated during the inspection that overcharging of the capacity reservoir interfered with or prevented an automatic service reduction in the equalizing reservoir and brake pipe, adequate means must be promptly applied on all locomotives to prevent such overcharging.

Inspection, Tests, Maintenance, etc.

1. Arrangements should be made for careful inspection and test of the train-stop equipment on all locomotives operated in train-stop equipped territory upon arrival at and before departure from designated inspection and repair points. This inspection and test should include all parts of the apparatus. All seals should be inspected to see that they are unbroken. Before departure from terminals it should be known and recorded that the apparatus is properly cut in service. A daily report as to the condition of the apparatus should be made on a form provided for that purpose and forwarded by the inspector to a designated officer.

2. In this installation, the automatic exhaust from the equalizing reservoir is made through a service application valve in the brake valve head. The proper operation of this valve depends upon the maintenance of the integrity of the connecting pipe between the oil reservoir and this head, and of the movable parts in the latter. The Sprague Company has an alternative interchangeable construction in which the automatic exhaust from the equalizing reservoir is made at the pilot or vent valve, and this alternative interchangeable construction is here brought to the attention of the carrier for consideration.

3. The choke in the oil reservoir and supply valve whistle is incorporated in the whistle itself so that the removal of this whistle removes the choke. The absence of the choke would operate to delay the application of the brakes, and the absence of the whistle with the choke would result in failure of the device to apply the brakes. It is understood that it is proposed to install the choke in the oil reservoir structure as a corrective of the condition described and this change should be made promptly.

4. Experience on these lines employing the present type of Sprague track magnet indicates that there is less danger of the displacement of this magnet than had been feared, and it is now believed that its form, weight, and position makes displacement, or removal, unlikely. The employment of detectors will not, therefore, be required on this installation provided that the magnets are securely fastened to the ties, and those fastenings maintained effectively.

(5) All track magnets should be regularly inspected to insure that they are in operative condition, and after each renewal of battery, wire, or magnets, they should be inspected

to insure that proper connections of the neutralizing circuits have been made, reports being made on a form provided for that purpose and forwarded by the inspector to a designated officer.

Signals, etc.

(1) The arrangements under which, in some cases, a caution distant signal for an entrance signal at a siding gives a stop magnet while others have no magnet, is believed to be undesirable, especially since in the latter cases there is no visual indication to the enginemen of the condition of the intermediate track magnet between the distant and entrance signals. It would seem to be better practice to have all caution distant signals to entrance signals for sidings provide a stop magnet in the absence of overlap.

(2) The circuits should be so arranged that should an absolute leaving signal at a lap siding be at stop with the intermediate lap siding signal falsely clear, the entrance signal to the siding will indicate caution, with its magnet in the stop condition.

(3) The circuits should be so arranged that should an entrance signal to a siding be falsely clear the distant signal to the entrance signal will indicate caution and the magnet thereof be in the stop condition.

(4) The circuits should be so arranged that should an intermediate signal be falsely clear with its block occupied, the magnet located at braking distance in the rear of the signal will be in the stop condition.

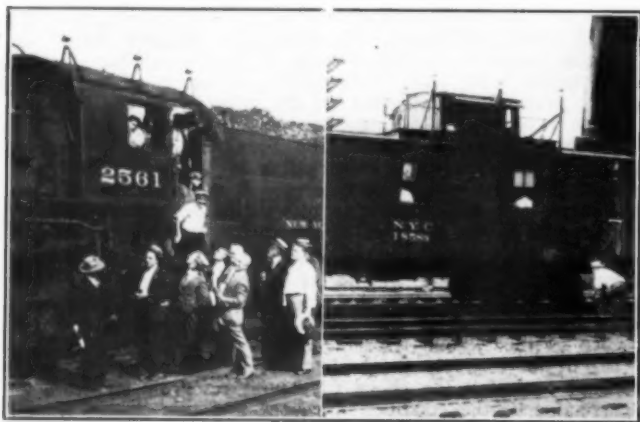
(5) It is suggested that braking distances be carefully checked with a view to making sure that they are adequate in all cases.

(6) It is suggested that the type of fouling protection employed be carefully considered with a view to the possibility of securing increased protection.

The Northern Pacific is expected to promptly and currently inform the commission as to the progress made in conforming to all of the above-stated requirements and recommendations.

Radio Phone Between Locomotive and Caboose

A PRACTICAL demonstration of radio telephone communication between engineman in the locomotive cab and the conductor in the caboose of a 115-car freight train was conducted successfully on the New York Central on July 8, between Chicago and Elkhart, Ind., a distance of 95 miles. The test was conducted under the auspices of Committee 12, Radio and



The Antenna of $\frac{1}{2}$ in. Brass Pipe Was Mounted Above the Locomotive Cab and Also Around the Cupola on the Caboose

Carrier Current Systems, of the Telegraph and Telephone Section of the American Railway Association, in conjunction with the Zenith Radio Corporation. In addition to members of the committee, communication officers of various roads were present to witness the

tests making a party of about 60. The radio apparatus performed in a satisfactory manner throughout the run and it was the consensus of opinion among the railroad officers present that such a facility could be used to advantage in freight train operation especially in mountainous country.

The train with a load of 4,600 tons, consisting of 115 cars (62 loads and 51 empties the majority of which were steel hopper cars) 1 business car, 1 coach and 1 caboose, left Englewood, Sixty-Third street, Chicago, about 9:00 a. m., making the 95-mile run to Elkhart, Ind., in 4 hr. 32 min.

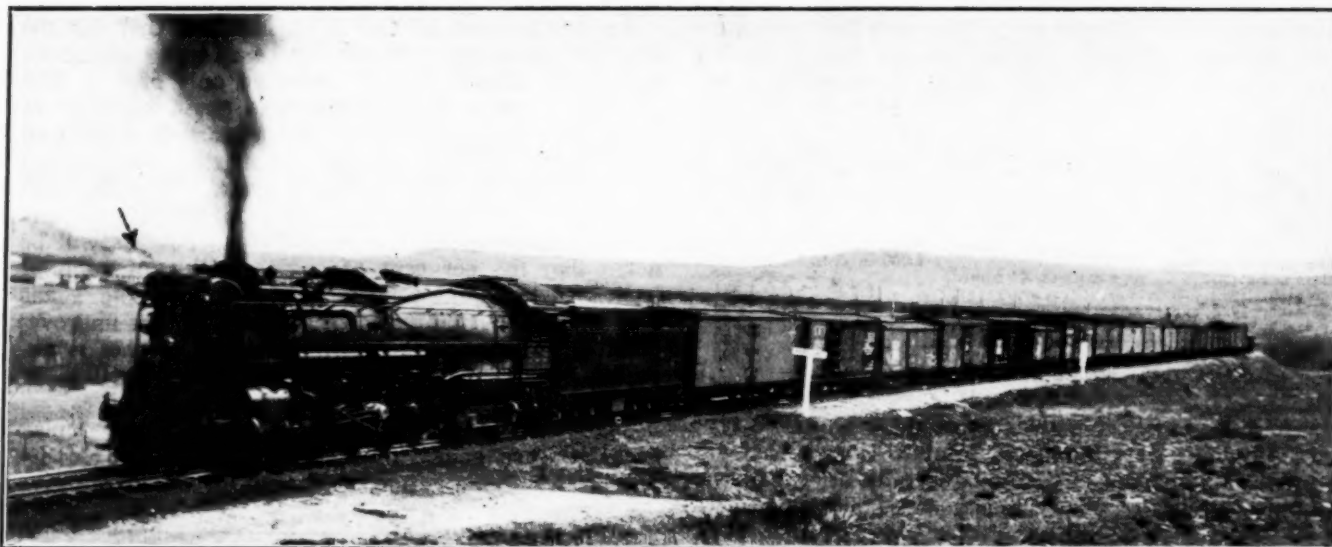
The first use of the radio telephone apparatus was made while making up the train when the conductor talked with the engineman during the terminal air brake test and told him that there was not enough air at the rear end. At Pine, Ind., the engineman gave the conductor the number of the helper engine being attached and informed the conductor when he was ready to pull out. It was noted in this case that a period of 26 sec. elapsed between the time the engine started and the instant the caboose began to move. Orders had been issued to make a stop at Millers, Ind. However, it was decided that the requirements could be met by throwing off messages at this point, whereupon the trainmaster in the caboose told the engineman to disregard the order to stop at Millers, but to call to the attention of the operator at that station that messages would be thrown off the rear end. This procedure being carried out successfully the train stop was eliminated. Other information regarding the operation of the train was passed back and forth from time to time.

Equipment Used

The radio equipment used in the locomotive—the same as that used in the caboose—consisted of a combined receiving and transmitting set with a dynamotor set operating from a 12-volt storage battery for the plate voltage and a 12-volt battery for the filament. Seven tubes; three for transmitting and four for receiving, were employed, a wave length of 115 meters being used. The antenna consisted of about 35 ft. of $\frac{1}{2}$ -in. brass pipe, which on the caboose was mounted on the frame work around the cupola, and on the engine above the cab roof.

The operation of the radio equipment was comparatively simple as was evidenced by the fact that the members of the train and engine crew, as well as a number of the railroad men present, had no trouble in securing satisfactory results. When ready for service the two sets are tuned; then by pressing a button in the caboose a howl was produced in the loud speaker in the engine cab. This signal was answered by the engineman by pushing a button and saying, "Engine 2561 talking, what do you want?" This started the conversation. The receiver and transmitter of each set are mounted together in a portable style with a finger switch on the arm which is pressed when talking, this switch controlling the dynamotor which produces the transmitting voltage.

The howler signals which can be transmitted and received over the loud receivers at any time are used for calling a man to the phone, but can also be used to transmit the standard A.R.A. train operating signals such as for a "stop," "go-ahead," etc., that can be given by the signal air system on passenger trains. These howler signals can be transmitted and received successfully under most any ordinary conditions. However, the speech transmission or reception was considerably reduced when the engine or caboose was passing through a long heavy steel bridge.



Texas Type Engine 609 Westbound Out of Baird Yard with 4,000 Tons and 91 Cars, 1.3 Per Cent Grade, 4½ Miles Long—Arrow Indicates Switcher Pushing with Tender Truck Booster Cut In

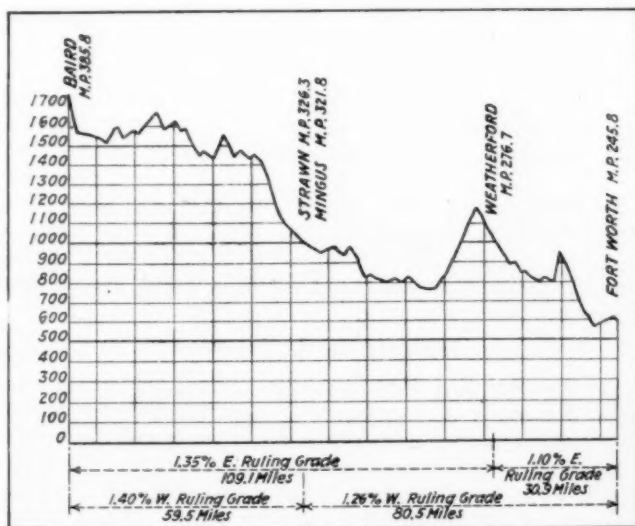
Texas Type Locomotives Show Marked Fuel Economy

New power on Texas & Pacific big factor in 15 per cent saving of fuel in freight service

THE operation of the 10 Texas type, 2-10-4 locomotives, placed in service by the Texas & Pacific last December and described in the *Railway Age* of December 19, page 1143, has been responsible to a

engine capacity to maintain uniformly high speeds under load. Other features are the large firebox volume, articulated four-wheel trailing truck with booster drive to the rear wheels, articulated main rods, 250-lb. boiler pressure and valve design for a maximum cut-off of 60 per cent.

The effect of the Texas type locomotives on the system



Condensed Profile of the Ft. Worth District

considerable extent for a 15 per cent reduction in fuel consumption per thousand gross ton-miles on the system for the first four months in 1926 as compared with the similar period of 1925. These locomotives, built by the Lima Locomotive Works, Inc., were designed to have high starting power with an ample margin of boiler and



Engine 602 Starting a Train Out of Ft. Worth Yard with the Booster Cut In

fuel performance of the Texas & Pacific may be seen by a study of results on the difficult Ft. Worth district, on which most of these locomotives are operated. The ruling grade eastbound on this district is 1.35 per cent,

and westbound, 1.40 per cent. The unit fuel consumption and average train load in through freight service are shown in Table I which affords a comparison between the performance of the G-I-b, or Santa Fe type engines on this district, and that of the I-I, or Texas type for the month of March in a number of years.

TABLE I—FUEL AND TONNAGE PERFORMANCE ON THE FT. WORTH DISTRICT, THROUGH FREIGHT SERVICE

	Gal. oil per 1,000 G. T. M	Tons per train mile
Class G-I-b (Santa Fe type engines, 44 owned)		
March, 1922.....	15.5	1,371
March, 1923.....	18.2	1,354
March, 1924.....	15.8	1,395
March, 1925, St. pres. increased to 200 lb.....	13.4	1,620
March, 1926.....	12.7	1,593
Class I-I (Texas type engines, 10 owned)		
March, 1926.....	7.4	2,350

The Texas & Pacific owns 44 of these Santa Fe type engines which were purchased prior to 1920. They are of a well proportioned design, generally as economical as other engines of this type, and with boiler efficiencies running as high as 80 per cent. Early in 1925 their steam pressure was raised from 185 to 200 lb., increasing the tractive force to 67,700 lb., and some of these engines have since been equipped with boosters and feed-water heaters. The comparative dimensions of the Santa Fe and Texas type locomotives are given in Table II.

TABLE II—COMPARISON OF DIMENSIONS OF 2-10-2 AND 2-10-4 TYPE LOCOMOTIVES OF THE TEXAS & PACIFIC

	Santa Fe type 28 in. by 32 in. 63 in.	Texas Type 29 in. by 32 in. 63 in.
Cylinders, diameter and stroke.....	28 in. by 32 in.	29 in. by 32 in.
Diameter of driving wheels.....	63 in.	63 in.
Maximum cut-off.....	90 per cent	60 per cent
Weight on drivers.....	267,500 lb.	300,000 lb.
Weight on total engine.....	332,000 lb.	448,000 lb.
Weight on engine and tender.....	560,400 lb.	723,200 lb.
Tractive force, engine.....	.....	83,000 lb.
Tractive force, booster.....	.....	13,000 lb.
Tractive force, total.....	67,700 lb.	96,000 lb.
Cylinder horsepower.....	2,824	3,788
Weight per cylinder horsepower.....	118	118
Ratio of adhesion, engine.....	3.95	3.61
Steam pressure.....	200 lb.	250 lb.
Grate area.....	70 sq. ft.	100 sq. ft.
Total heating surface.....	3,792 sq. ft.	5,113 sq. ft.

Referring to Table I, in March, 1922, the Santa Fe locomotives burned 15.5 gal. of oil per thousand gross ton-miles and hauled an average of 1,371 tons per train mile. As a result of fuel campaigns, increasing the steam pressure, applying boosters and feedwater heaters, the unit fuel consumption was reduced in March, 1926, with this type of engine to 12.7 gal. of oil per thousand gross ton-miles, the average load handled being increased to 1,593 tons per train. In March, 1926, the fuel consumption of the 10 Texas type locomotives, on the other hand, was only 7.4 gal. of oil per thousand gross ton-miles, a decrease of 41.7 per cent and the average load 2,350 tons per train, an increase of 47.5 per cent, thus demonstrating the great superiority of the Texas type locomotives from both a fuel economy and power standpoint. A 31 per cent decrease in fuel consumption over the Santa Fe type was anticipated in the original design of the I-I class and this mark has been more than reached.

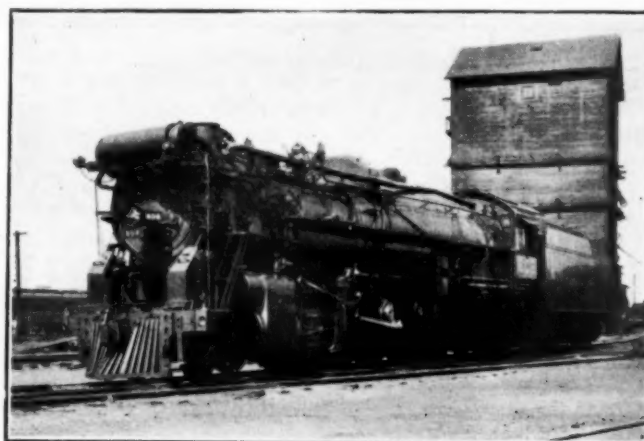
That March was not a month in which the Texas type locomotives made an exceptional showing is proved by Table III which gives the figures for a four-month period.

TABLE III—COMPARATIVE MONTHLY ENGINE PERFORMANCE ON THE FT. WORTH DISTRICT IN 1926

	January		February		March		April	
	Texas type	Santa Fe type	Texas type	Santa Fe type	Texas type	Santa Fe type	Texas type	Santa Fe type
Average ton miles per train mile..	2,181	1,518	2,177	1,465	2,350	1,601	2,327	1,632
Per cent engine utility	78	74	76	72	84	78	82	79
Average speed, miles per hour.	18.4	14.6	19.5	14.5	19.3	....	19.3	....
Gal. oil per 1,000 gross ton-miles.	8.1	14.2	7.7	13.1	7.4	12.7	7.3	12.4
Per cent unit fuel consumption ...	57.0	100	58.8	100	58.2	100	58.8	100

An examination of this table indicates that for the first four months of this year the Texas type locomotives on the Ft. Worth district consumed only 57.0 to 58.8 per cent as much fuel per thousand gross ton-miles as the Santa Fe type, the average increase in train load being figured as 42.6 per cent greater than that handled by the Santa Fe type without booster. The speed was also higher although other factors militate against any conclusion drawn from comparative speeds. It will be noted that the per cent of engine utility, or ratio of train load to engine tonnage rating, favored the Texas type engines, but only slightly. A still further improvement in fuel performance with the new engines is expected during the summer months when there will be less loss from radiation.

The Texas type locomotives are operated with duplex back pressure gages, thus enabling enginemen to determine when they are using the cut-off which will give



Texas Type Locomotive 602 Ready for Service at Ft. Worth Enginehouse

best results. In actual tests they have developed 4,160 indicated horsepower at 38 miles an hour and 57 per cent cut-off. They have not been in service a sufficient length of time to furnish definite conclusions regarding the cost of repairs per mile but present available figures indicate a lower cost than for the Santa Fe type. Good evaporation is being obtained although no exact records have been kept. Water has been taken after a 140-mile run.

Besides saving fuel and water, the increased capacity of these locomotives has resulted in a marked decrease in engine and train crew expense on a gross ton-mile basis, the net result being a good percentage return on the investment.

Popular with Crews

During the past few years the Texas & Pacific has made a number of purchases of new locomotives, none of which have met with the same interest and favor on the part of engine crews and train men as has the new Texas type. With these locomotives there is marked evidence of the old interest existing prior to the pooling of locomotives when each crew had its own regular locomotive. Enginemen and firemen give considerable personal attention to running repair work on the new locomotives and display an unusual interest in them considering that they likewise are in pool service. The reasons for the popularity of the new Texas type power with the engine crews are their greater flexibility, smooth riding, ease of operation, speed, and the fact that less time is spent on the road in making specified runs.



A Gas-Electric Car Which Has a Seating Capacity of 97 Passengers and Weighs 103,880 lb. Light and 121,380 lb. Loaded

N. Y., N. H. & H. Acquires 73-foot Gas-Electric Car

Seating capacity for 97 passengers—Will be used in branch line service without a trailer

FIVE gas-electric cars, 73 ft. long with a seating capacity for 97 passengers have recently been delivered to the New York, New Haven & Hartford by the J. G. Brill Company, Philadelphia, Pa. These cars will be used in regulation branch line service



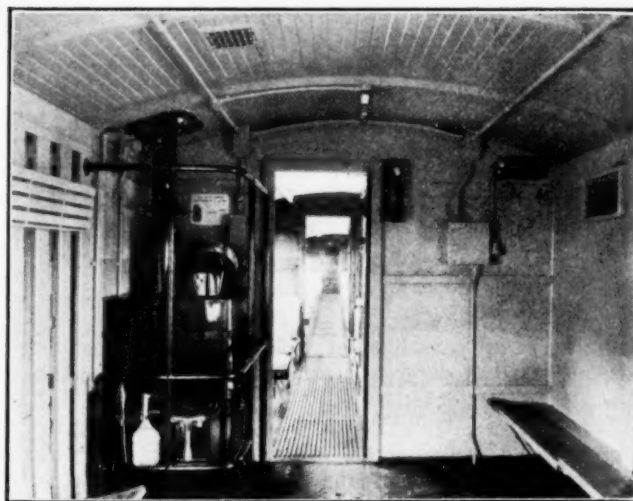
A 24-in Aisle Separates the Two Rows of Reversible Seats

without a trailer making from 70 to 175 miles per day, the schedule requiring a speed of 35 miles per hour. The weight of these cars without load is 103,880 lb. The estimated average load is 121,380 lb. The engine generator unit is mounted at the forward end in a 11-ft. 2½-in. compartment which also houses all of the engine auxiliary apparatus and the control equipment. The operator's seat is located at the forward right hand side of this compartment. The control is arranged for double-end operation. The other control cab is located at the rear of the car at the right hand side. The main passenger compartment is 33 ft. 10½ in. long, with a seating capacity for 70 persons and a smoking compartment which is 10 ft. 2½ in. long and has a seating capacity

for 20 persons. The one row of reversible seats which holds three passengers is 55 in. wide and the other row which holds two passengers is 36½ in. wide. This leaves an aisle space of 24 in.

The baggage compartment, which is 11 ft. 3 in. long, is fitted with three folding seats for seven persons which can also be used as a smoking compartment. This compartment is provided with two sliding doors, 40 in. wide. Access to the engine room is through a 24-in. swinging door.

Passengers enter the main passenger compartment by two 30-in. vestibule doors located at the rear end of the



Looking Up the Aisle Through the Baggage, Smoking and Passenger Compartments

car. The toilet is located in the rear vestibule and the car is heated by a coal-fired, hot air heater located in the baggage compartment.

The car is mounted on Brill No. 27 M. C. B. trucks. The wheel base of the forward truck, on which the electric traction motors are mounted, is 7 ft. 6 in., while the

wheel base of the trailing truck is 7 ft. The wheel diameter is 33 in. and the journals are equipped with Timken roller bearings. The truck centers are 54 ft. 6 in.

The motive power equipment consists of a Brill-Westinghouse 250-hp., 6-cylinder gasoline engine, driving a 160-kw. generator. The power is supplied to two 240-hp. 600-volt traction motors.

The 160-gal. gasoline tank is located beneath the center sills underneath the baggage compartment. A cover plate extends over the center sills the length of the tank, completely enclosing and protecting the gasoline tank in

case of collision or derailment. The following are the principal weights and dimensions:

Length over coupling faces.....	75 ft. 10 in.
Length over car body.....	73 ft.
Length of engine room.....	11 ft. 2 1/4 in.
Length of baggage compartment.....	11 ft. 3 in.
Width of car.....	9 ft. 3 in.
Length of smoking compartment.....	10 ft. 2 1/4 in.
Length of passenger compartment.....	33 ft. 10 3/4 in.
Width over sheathing.....	10 ft. 1/2 in.
Height from floor to ceiling.....	7 ft. 1/2 in.
Height of rail to top of car.....	12 ft. 3/4 in.
Height of rail to top of exhaust outlet.....	13 ft. 9 1/8 in.
Height of rail to floor.....	52 1/2 in.
Truck centers.....	54 ft. 6 in.
Total light weight.....	103,880 lb.

Combination Motor Car Equipped for Railway Postal Service

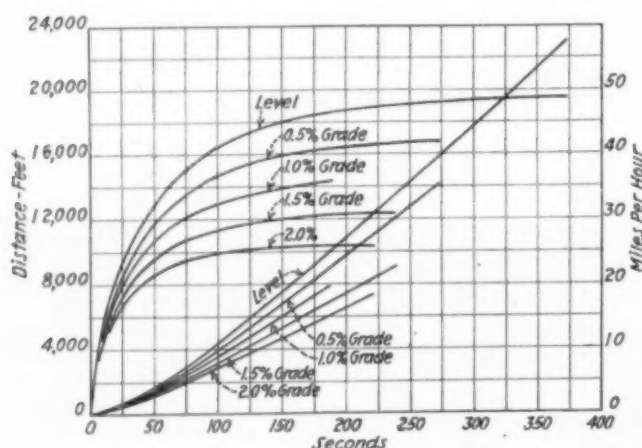
New cars for the C. & N. W. designed to replace completely local steam passenger trains

THREE 72-ft. combination gas-electric rail motor cars recently built by the Electro-Motive Company, Cleveland, O., for the Chicago & North Western are representative of a type designed to fulfill all the requirements of local steam passenger operation in districts where the volume of passenger traffic is limited. Cars previously built have either been designed

cause of limited seating capacity and yet the traffic demand would hardly be enough to warrant the operation of the car and the trailer on certain schedules.

With the idea of meeting such conditions the Electro-Motive Company has built this type of car with a 70-ft. 6-in. body having ample baggage space, a smoking room seating 15 persons and a passenger compartment seating 27 persons, a total of 42 passengers. In addition a 15-ft. mail compartment is provided, equipped in accordance with the requirements of railway postal service.

The table of average speeds shows a comparison of the operation of this car alone on level track and on a 0.5

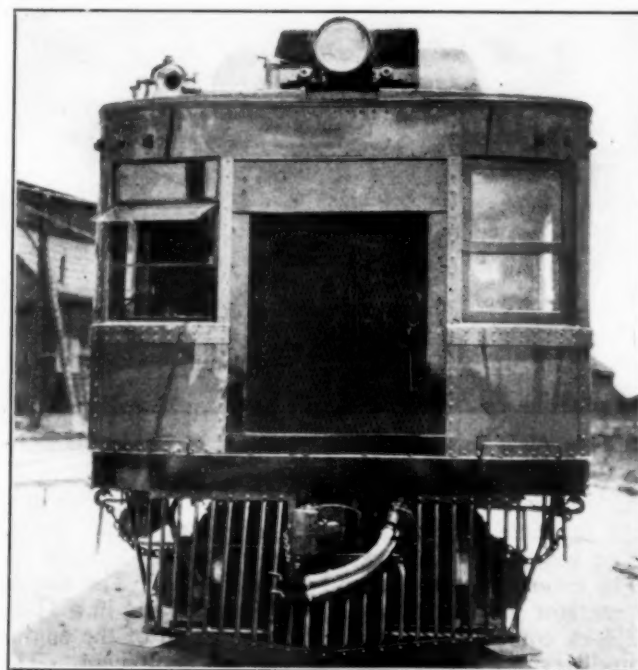


Speed-Time and Distance-Time Curves for the 72-ft. Motor Car on Varying Grades

for maximum passenger seating capacity or for limited seating capacity combined with reasonably large baggage and express compartments.

These cars, it is expected, will be used in service on the C. & N. W. between Harvard, Wis., and Kenosha, a distance of 44.3 miles, Clinton, Ia., and Anamosa, a distance of 71.4 miles, and Velle-Plaine, Ia., and Arkel, a distance of 63 miles. The steam train service between these points has been of the typical local passenger type, the make-up of the trains usually being a locomotive, combination mail and baggage car and one day coach weighing about 50 tons.

Quite often the demands of service are such that a relatively small number of passengers must be handled in conjunction with a normal amount of mail, express or baggage. The smaller, or 60-ft., motor car would in many cases necessitate the hauling of a trailer coach be-



Head-End View Showing the Radiator Arrangement

per cent compensated grade with that of a 60-ft. motor car hauling a 35-ton trailer. It will be seen that considerable advantage from an operating standpoint may be gained. A comparison of the acceleration rates show that the 72-ft car can be brought to a speed of 40 m.p.h.

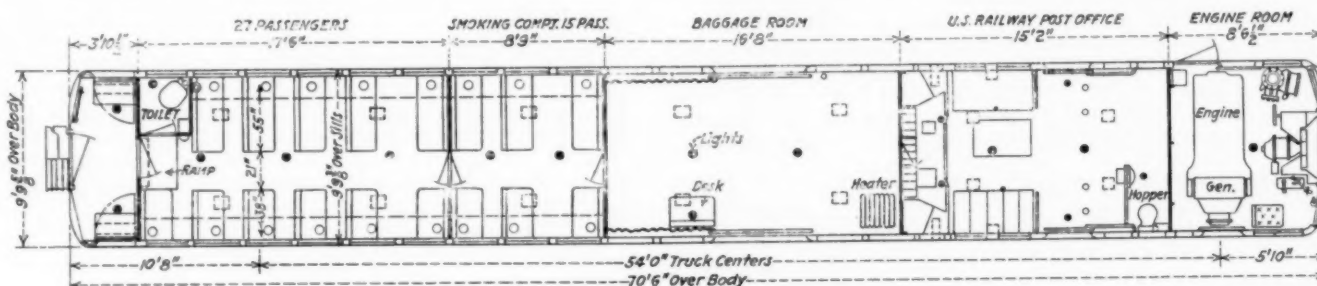
in 90 sec. and 3,800 ft. while the 60-ft. car with trailer requires 170 sec. and 7,000 ft. Each has a braking deceleration rate of $1\frac{1}{2}$ miles per hour per second. Maximum speeds of approximately 50 m.p.h. are possible.

Mechanical and Electrical Features

These cars are typical of the single-unit gas electric cars built by this company which have been described in

with 6 ft. 6 in. wheel centers and 33 in. diam. wheels. The extreme height above the rail is 13 ft. $9\frac{7}{8}$ in.

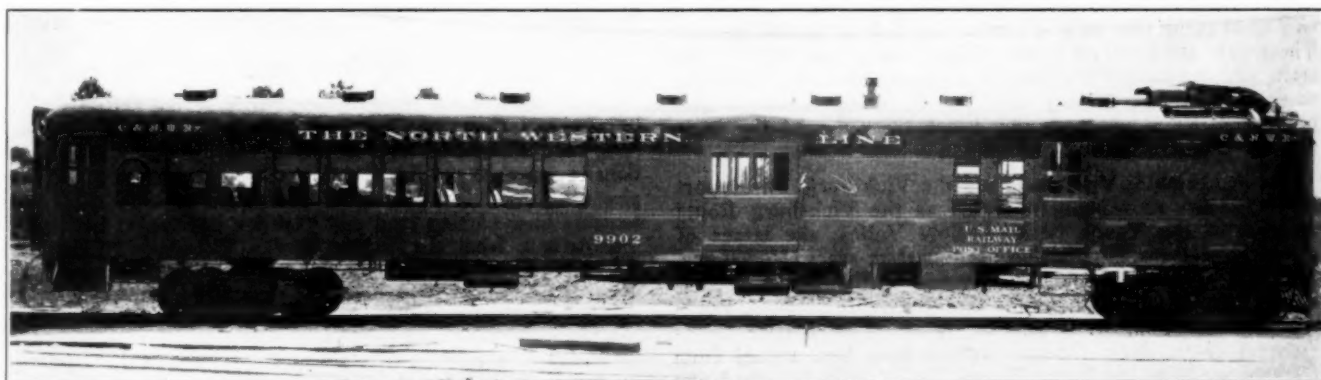
As compared with the 60 ft. car and standard trailer which together weigh approximately 75 tons, this 72-ft. car, with an approximate weight of 45 tons, should comprise a relatively economical operating unit—the builders estimating that the over-all operating cost of the single larger car should be from 10 to 15 per cent less than that



Floor Plan of the Combination Car Built for the C. & N. W.

previous articles in the *Railway Age*. The power is generated by a single six-cylinder 200-hp. Winton gasoline engine direct-connected to a 700-volt General Electric direct-current generator. Single-end controls are provided for two motors geared to the axles of the leading

of one of the 60-ft. cars handling a trailer. When operating conditions demand added capacity there is still reserve power enough in this car to handle one of the standard 35-ton trailers at a somewhat lower average speed, so it is believed that this type of car may be



72-ft. Combination Motor Car Built for the Chicago & North Western by the Electro-Motive Company

truck. The engines are designed for a normal operating speed of 1,000 r.p.m. Westinghouse type AML air brakes, with automatic features, are used.

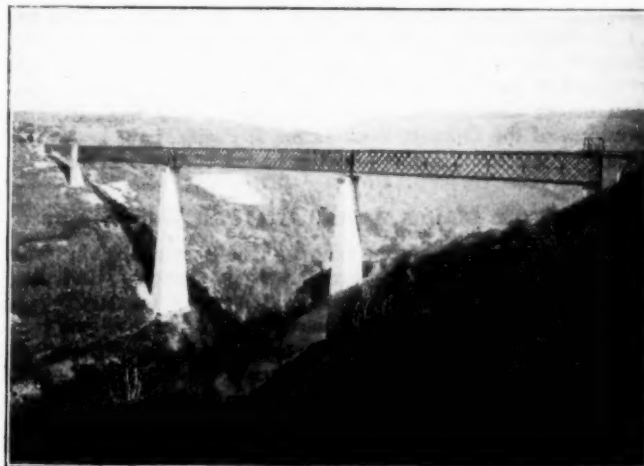
The total weight of the car is 90,000 lb.; the total length over coupler pulling faces is 72 ft. $9\frac{5}{16}$ in., and the width over eaves is 9 ft. $10\frac{3}{4}$ in. The car body

adapted to a great variety of operating conditions in local passenger service on branch lines.

AVERAGE SPEEDS IN MILES AN HOUR, LEVEL TRACK

Make-up of train	Distance between stations—miles									
	1	2	3	4	5	6	7	8	9	10
60-ft. car and 35-ton trailer	24.0	30.0	33.5	36.0	37.0	38.5	39.5	40.	40.5	41.0
72-ft. car alone	28.0	34.0	37.5	39.5	41.0	42.5	43.0	43.5	44.2	44.8
AVERAGE SPEEDS IN MILES AN HOUR—GRADE 0.5 PER CENT, COMPENSATED										
60-ft. car and 35-ton trailer	22.0	26.5	28.5	30.5	31.0	32.0	32.5	33.0	33.5	33.5
72-ft. car alone	26.0	31.5	34.2	35.7	37.0	37.5	38.5	39.0	39.5	39.8

and underframe are of steel construction and the interior is divided into five compartments and a vestibule platform. The lengths of the several compartments are as follows: engine room, 8 ft $6\frac{1}{2}$ in.; mail compartment, 15 ft. 2 in.; baggage compartment, 16 ft. 8 in.; smoker, 8 ft. 9 in.; passenger compartment 17 ft. 6 in., and rear vestibule 3 ft. $10\frac{1}{2}$ in. The total length of the body is 70 ft. 6 in. The distance between truck centers is 54 ft.



A Viaduct on the Paris-Orléans

General News Department

The Interstate Commerce Commission has announced a further extension of time for the fulfilment of its second automatic train control order in the case of the Chicago, Milwaukee & St. Paul and the Erie to December 31. The commission also modified its order to permit the C., M. & St. P. to make its installation between La Crosse and Portage, Wis., instead of between the points specified in the order.

The Interstate Commerce Commission has granted a petition of the Chicago & Eastern Illinois for permission to operate trains and locomotives over the tracks of the Cleveland, Cincinnati, Chicago & St. Louis between Pana, Ill., and Bridge Junction, Ill., until November 1, 1926, without such locomotive being equipped with automatic train control apparatus of the type being installed on the C., C. & St. L. The commission has postponed to November 1 the effective date of its second train control order of January 14, 1924, in the case of the Chicago, Rock Island & Pacific.

The Canadian Pacific is operating two hospital cars along its Laurentians run between Montreal, Que., and Mont Laurier in order to meet any demands that may arise or urgent calls that may occur in cases of sickness or accidents on the line. First class cars have been converted into hospital rooms in such a way as to easily take care of four or five sick or injured persons. These cars are attached to the baggage car at the front of the train, and are entered through the baggage car so that stretcher cases are ensured privacy and can be easily handled. This accommodation is given on two trains every day of the week, and one train on Sundays.

The Alabama & Vicksburg and the Vicksburg, Shreveport & Pacific are now being operated as the Vicksburg Route division of the Yazoo & Mississippi Valley, the lessee of those two railroads. Division headquarters are at Vicksburg, Miss. The present Vicksburg division of the Yazoo & Mississippi Valley is designated as the Greenville division, headquarters remaining at Greenville, Miss. The division headquarters of the New Orleans division have been moved from Vicksburg, Miss., to Baton Rouge, La. Vicksburg yard (Y. & M. V., A. & V. and V. S. & P.), including shops, are under the jurisdiction of the superintendent of the Vicksburg Route division.

Chicago City Council Electrification Hearings

A series of hearings to be held on July 19, 20, 21 and 22 has been called by the city council of Chicago to discuss electrification of the terminals of lines entering that city. Charles H. Markham, president of the Illinois Central; H. E. Byram, one of the receivers of the Chicago, Milwaukee & St. Paul; Fred W. Sargent, president of the Chicago & North Western; E. H. Lee, president of the Chicago & Western Indiana; Hale Holden, president of the Chicago, Burlington & Quincy; and J. E. Gorman, president of the Chicago, Rock Island & Pacific, have been asked to discuss electrification possibilities at the various sessions.

Boston & Maine Headquarters in New Home

The transfer of the general offices of the Boston & Maine from the scattered quarters in North Station, Boston, Mass., and adjacent old structures to the new general office building of the system built at Lechmere square, East Cambridge, was completed on July 12. With the removal of all the executive offices, together with the forces of several departments, to join those of the accounting department who have occupied the lower floors of the modern 8-story building for some weeks, only the operating forces which are directly concerned with the operation of trains in and out of the Boston terminal remain in the North Station group. It is proposed to make the space vacated available for business purposes.

Concrete Slab Track Construction to Have Test

A practical test of the plan advanced by Frank H. Alfred, president of the Pere Marquette, for a new form of track construction will be carried out on the Pere Marquette between Detroit, Mich., and Plymouth. This track construction comprises the use of a reinforced concrete slab approximately 10 ft. wide and 18 in. thick to which the rails are attached without the interposition of cross ties. This form of construction was described in the *Railway Age* of December 12, 1925.

A Correction

Owing to a typographical error, two lines were omitted from the fifth paragraph of the letter from C. C. Cook which appeared in the issue of June 26, page 1951. This paragraph should have read as follows:

"The untreated cross tie, with tie plate, in track lasting nine years, costs \$0.38 per year. The treated tie, costing \$3.55 in track must give 14 years life in order to justify the added expense.

"Generally an average life of approximately 9 years is being secured from untreated ties, but an average life in excess of 14 years is being secured from the treated tie."

A Correction

By an unfortunate typographical error in the article entitled "Eucharistic Congress Presented Difficult Rail Problem," published in the *Railway Age* of July 3, the *Railway Age* unintentionally conveyed the impression that there might have been unpleasantness in the handling of passengers at Mundelein. One sentence in the article read that "fighting interrupted the supply" (of current from the Public Service Company of Northern Illinois). If there was any fighting the *Railway Age* didn't know it nor would it have mentioned it if it did. What caused the interruption in the supply of current was "lightning"—not fighting.

Long Island Offers Line to New York City

The Long Island railroad has offered to quit claim to the city of New York its Whitestone branch (about 4 miles long). Grade crossing elimination on this branch will cost about \$4,000,000, of which the railroad's share would be \$2,000,000, which expense it desires to avoid, in view of the fact that rapid transit development will probably make the line useless before a great while.

The railroad offers to operate motor buses on the existing right-of-way of the Whitestone branch after it has been converted by the city into a highway or upon streets in the vicinity. Freight service would be provided by motor truck.

Canadian Union Claims Gains

at Expense of A. F. of L.

President A. R. Mosher, of the Canadian Brotherhood of Railway Employees, addressing a meeting in Halifax this week, declared that large numbers of the railway shopmen throughout Canada are leaving the various American craft unions and are joining the Canadian Brotherhood, believing that in the latter they have an organization through which they can conduct their own affairs without dictation from the workers of another country.

President Mosher outlined the progress the brotherhood had been making and what it was doing for its members. In connection with the increase in membership, he stated that gains have largely been made in the west, where the shopmen are leaving the craft unions and joining up with the brotherhood.

In Winnipeg, recently, 1,000 of the shopmen in the Transcona shops signed up with the brotherhood, he said.

Safety Section Circular No. 131

Of the casualties to railroad employees in the United States in 1925—1,599 killed and 119,224 injured—no less than 76 of the fatal and 589 of the non-fatal injuries happened to men who were not on duty. This is the main topic of Circular No. 131 which has been issued by the Committee on education, of the Safety section, A. R. A., embracing its program for the activities which it is desired shall be made the special business of the safety specialists on all railroads during the month of August. Riding on the side of a freight train to save a short walk is one of the more common occasions in which employees are injured when off duty; and the circular contains two pictures, one of which emphasizes the fact that many of these employees are those in the clerical service, with no possible excuse for endangering their lives on the railroad any more than would a school teacher or a clergyman.

Summer Outing of the New York Railroad Club

The New York Railroad Club held its third annual outing or mid-summer festival at the New York Athletic Club, Travers Island and at the Winged Foot Golf Club, Mamaroneck, N. Y., on Thursday, July 8. A large number of those who attended motored to Travers Island and a special train on the New York, New Haven & Hartford left New York at noon. The Long Island Railroad Band played en route and headed the procession in the march from the station at Pelham Manor to Travers

220-yd. dash won by E. O'Shea, Long Island, 24 sec.; 440-yd. dash won by E. Shotter, Long Island, 54 sec.; 880-yd. run won by O. Rosener, Long Island, 2 min., 3½ sec.; one-mile relay race for company teams, won by the Safety Car Heating & Lighting Company, with the Long Island second, and the Erie third.

In the tennis tournament, the single were won by E. A. Rudy, with C. P. Richenberg, runner-up, both of the Baltimore & Ohio. The doubles tournament was won by A. C. Home of the White Company and C. W. Squer of the Electric Railway Journal, the runner-up being A. A. Borgading of the American Car & Foundry, and W. B. Johnson of Ross F. Hayes. Other special features were swimming, quoits and a baseball game between Erie and New York Central teams which was won by the former with a score of eleven to three.

The quoit pitching contest was won by H. W. Mowery, American Abrasive Metal Company with Maxwell King, Atlantic Fruit Company, second.

J. S. Doyle, assistant general manager of the Interborough Rapid Transit Company, who was general chairman of the annual outing committee was unable to attend due to the labor troubles on the Interborough.

Valuation for Recapture

In a brief filed with the Interstate Commerce Commission on the valuation of the St. Louis & O'Fallon, in the test case now pending before the commission involving the methods and principles to be used in valuing railroads for recapture purposes,



Group of Railroad Officers and Supply Men at New York Railroad Outing

Island. A buffet luncheon and dinner were served at the clubhouse and the party returned to New York on a special train late in the evening.

Among the various forms of relaxation which were a part of the outing were a number of competitive sports in which prizes were awarded. These included a golf tournament at the Winged Foot Golf Club in the morning and a tennis tournament and track meet at Travers Island in the afternoon. A variety of prizes was offered in the golf tournament covering low gross, low net, "kicker's" handicap, and others, the winners of prizes being as follows: Albert Hedley, Sterlip Press, Inc.; H. B. Weatherwax, vice-president, Delaware & Hudson Traction Lines; L. O. Smith, vice-president, Columbian Machine Works & Malleable Iron Co.; Elisha Lee, vice-president, Pennsylvania Railroad; Harry B. Doyle, Doyle, Kitchen & McCormick; Carl H. Beck, assistant eastern manager, Westinghouse Air Brake Company; J. D. McLean, W. A. Callison, W. W. Krider, T. L. Harrigan, J. Schneider, A. Schneider, S. P. Hull, Cupid R. Black, Richard Devans, J. J. Dunne.

Long Island employees won first places in all but one of the track events. The results of the track meet were as follows: 100-yd. dash won by K. Wildermuth, Long Island, 10½ sec.;

Leslie Craven, counsel for the western group of the railroad presidents' valuation committee, says that the arguments advanced in this case are not intended to suggest how the valuation of all the western railroads shall be made for rate making purposes.

"At the time of the argument," he said, "there was some comment on the part of certain of the counsel with reference to the effect upon the rates of the western lines, were those rates to be based upon a value of the property of these carriers based upon a fully effective consideration of present-day construction costs. Under such circumstances, we are led to make this concluding observation: The issue before the commission in these proceedings is the straight issue of the value of the O'Fallon road in a recapture case. Obviously, and for the reasons which we have suggested, that railroad has a value not less than the present full cost of its construction. Our effort here has been confined to a demonstration of the proposition that the prudent investment theory as applied to that railroad produces an uneconomic as well as unlawful result.

"We have not discussed and have not intended to suggest how the valuation of all the western railroads should be made for

(Continued on page 114)

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MAY AND FIVE MONTHS OF CALENDAR YEAR 1926

Name of road	Average mileage operated during period.	Operating revenues			Operating expenses			Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rents.	Net after rents, 1925.
		Freight.	Passenger.	Total (inc. misc.).	Maintenance of way and structures.	Equipment.	Traffic.					
Akron, Canton & Youngstown.....	May 171	\$268,400	\$371	\$280,342	\$1,660	\$34,024	\$9,830	66.3	\$94,375	\$75,482	\$41,231	\$73,178
Albany & Vicksburg.....	5 mos. 171	1,258,144	1,977	1,260,121	246,251	149,674	57,127	69.3	405,347	311,158	149,439	202,258
Albany & Vicksburg.....	May 141	210,871	56,250	267,121	96,663	70,023	10,100	104.6	13,450	37,523	31,450	23,222
Albany & Vicksburg.....	5 mos. 141	1,048,374	256,523	1,304,897	279,407	212,862	50,311	84.3	219,635	82,422	92,728	286,547
Vicksburg, Shreveport & Pacific.....	May 188	245,116	55,143	299,259	50,009	125,014	12,488	103.6	336,847	31,790	42,211	58,569
Ann Arbor.....	5 mos. 188	1,324,146	263,677	1,587,823	286,435	402,258	64,173	79.9	1,009,361	79,997	12,278	173,348
Ann Arbor.....	May 293	465,655	18,516	484,171	59,424	98,799	11,981	77.1	119,166	96,393	7,862	123,490
Ann Arbor.....	5 mos. 293	2,208,965	123,697	2,332,662	200,483	501,294	57,781	77.1	1,550,061	434,431	358,655	403,127
Atchafalaya, Topeka & Santa Fe.....	May 9,219	10,713,356	3,199,135	13,912,491	2,845,246	3,129,947	4,742,617	75.0	3,443,510	2,455,096	2,417,546	1,937,397
Atchafalaya, Topeka & Santa Fe.....	5 mos. 9,219	52,052,805	15,822,308	67,875,113	11,575,735	15,037,995	24,047,258	72.8	19,364,335	13,210,839	13,362,335	10,898,239
Gulf, Colorado & Santa Fe.....	May 1,908	1,757,108	250,311	2,007,419	530,585	484,234	54,444	87.7	1,522,965	184,139	59,098	5,086
Gulf, Colorado & Santa Fe.....	5 mos. 1,908	8,652,110	1,143,932	9,796,042	2,479,806	2,309,679	3,717,709	86.8	1,374,131	922,664	354,612	825,828
Parishville & Santa Fe.....	May 923	910,910	139,860	1,050,770	120,069	236,597	11,087	61.1	430,758	373,511	308,813	47,046
Parishville & Santa Fe.....	5 mos. 923	3,974,655	623,130	4,597,785	455,202	977,541	1,348,147	59.7	1,974,339	1,603,446	1,429,060	537,767
Atlanta & West Point.....	May 53	163,349	67,266	230,615	33,418	57,082	93,863	80.9	92,748	33,548	23,436	29,929
Atlanta & West Point.....	5 mos. 53	818,013	343,058	1,161,071	189,972	238,152	476,342	78.9	277,956	202,702	141,319	144,174
Western of Alabama.....	May 133	193,129	65,240	258,369	35,363	27,515	11,912	73.4	74,596	37,239	51,982	58,086
Atlanta, Birmingham & Atlantic.....	5 mos. 133	1,023,985	324,653	1,348,638	168,555	59,111	450,569	70.4	432,063	349,561	316,418	283,756
Atlanta, Birmingham & Atlantic.....	May 639	340,525	38,858	379,383	107,145	76,298	29,981	58.2	172,490	18,683	7,099	16,570
Atlanta, Birmingham & Atlantic.....	5 mos. 639	1,963,922	200,674	2,164,596	452,485	896,792	896,792	59.3	257,367	137,100	86,930	1,360
Atlantic Coast Line.....	May 4,927	5,914,393	1,678,210	7,592,603	1,071,136	1,559,905	163,714	72.2	2,275,327	1,674,155	1,315,484	1,306,376
Atlantic Coast Line.....	5 mos. 4,927	31,078,314	11,371,435	42,449,749	4,918,648	7,658,414	789,340	65.5	15,897,775	12,992,259	10,894,794	10,722,201
Charleston & Western Carolina.....	May 342	276,239	25,006	301,245	50,999	43,549	117,159	71.5	158,875	68,191	54,247	4,518
Charleston & Western Carolina.....	5 mos. 342	1,575,367	112,763	1,688,130	320,755	223,057	667,492	72.8	477,509	369,840	304,035	332,434
Baltimore & Ohio.....	May 5,284	16,586,583	2,301,431	18,888,014	2,000,765	4,792,931	385,613	74.0	5,358,849	4,376,982	4,061,279	3,184,866
Baltimore & Ohio.....	5 mos. 5,284	79,519,076	10,718,865	90,237,941	11,502,307	22,884,834	1,963,526	77.8	21,353,725	16,915,894	15,442,430	12,379,808
Baltimore & Ohio.....	May 80	324,553	39,326	363,879	36,190	15,465	2,040	74.9	108,751	15,025	109,407	124,233
Baltimore & Ohio.....	5 mos. 80	1,478,077	169,363	1,647,440	161,461	33,941	813,463	83.7	241,426	2,581	486,793	429,822
Staten Island Rapid Transit.....	May 23	105,057	130,146	235,203	62,692	33,649	11,443	81.3	51,503	34,003	554	—1,112
Bangor & Aroostook.....	5 mos. 23	537,296	548,451	1,085,747	231,110	152,645	10,312	82.5	214,563	12,151	—4,249	—120,925
Bangor & Aroostook.....	5 mos. 615	473,502	63,096	536,598	98,133	100,152	5,397	63.8	204,561	15,243	173,053	183,209
Belt Ry. Co. of Chicago.....	May 32	.....	373,431	373,431	512,710	617,129	25,332	65.3	1,137,319	875,638	961,420	1,051,586
Belt Ry. Co. of Chicago.....	5 mos. 32	.....	630,996	630,996	70,269	65,446	3,516	67.0	308,245	138,804	176,808	129,890
Belt Ry. Co. of Chicago.....	5 mos. 228	1,547,368	13,125	1,560,493	240,129	341,048	16,379	69.6	907,073	601,090	827,604	637,968
Belt Ry. Co. of Chicago.....	5 mos. 228	4,360,151	76,278	4,436,429	1,320,060	319,923	14,046	54.4	724,611	633,610	634,173	656,247
Bingham & Garfield.....	May 33	47,833	.....	47,833	4,547,188	1,584,773	73,235	41.2	55,023	642,452	903,352	1,316,586
Bingham & Garfield.....	5 mos. 33	225,017	.....	225,017	5,607	7,963	1,375	62.3	18,485	11,668	27,179	10,870
Boston & Maine.....	May 2,276	4,329,117	1,499,493	5,828,610	37,145	47,672	7,452	75.4	1,530,565	1,388,160	1,102,483	753,247
Boston & Maine.....	5 mos. 2,276	20,778,474	8,139,926	28,918,400	3,630,162	6,220,172	13,629,654	76.6	7,678,769	6,404,154	5,023,749	3,474,174
Brooklyn Eastern Dist. Terminal.....	May 9	110,350	.....	110,350	5,940	14,493	44,156	60.9	43,955	38,519	39,759	42,617
Buffalo & Susquehanna R. R. Corp.....	5 mos. 9	569,170	.....	569,170	606,580	37,702	224,855	60.3	239,227	204,269	212,209	204,908
Buffalo & Susquehanna R. R. Corp.....	5 mos. 253	80,543	2,555	83,098	29,215	39,615	3,116	127.7	2,410	27,230	—19,298	—4,904
Buffalo & Susquehanna R. R. Corp.....	5 mos. 253	454,809	14,769	469,578	135,408	194,382	169,904	112.6	11,284	—77,634	—18,687	135,098
Buffalo, Rochester & Pittsburgh.....	May 601	1,382,916	95,944	1,478,860	446,591	28,455	515,074	70.7	311,256	261,165	255,887	111,746
Buffalo, Rochester & Pittsburgh.....	5 mos. 601	6,411,820	516,609	6,928,429	2,123,176	142,942	2,606,352	80.5	1,399,766	1,148,970	1,296,004	738,769
Canadian Pacific Lines in Maine.....	May 253	101,413	23,510	124,923	103,453	31,853	7,215	163.8	—88,401	—8,902	—112,068	—114,508
Canadian Pacific Lines in Maine.....	5 mos. 253	1,090,777	155,070	1,245,847	222,986	276,582	561,561	84.3	207,401	154,901	84,934	22,699
Central of Georgia.....	May 1,917	1,781,352	466,332	2,247,684	405,035	461,846	960,346	81.2	466,212	365,498	333,318	276,613
Central of Georgia.....	5 mos. 1,917	9,178,589	2,667,871	11,846,460	2,260,359	2,660,359	376,979	72.2	2,925,130	2,325,895	2,087,800	1,858,583
Central of Georgia.....	5 mos. 690	4,150,236	747,641	4,897,877	1,039,418	1,039,418	1,832,156	67.2	1,660,610	1,321,594	1,145,434	822,010
Central of Georgia.....	5 mos. 690	17,491,056	3,425,096	20,916,152	5,019,065	5,019,065	8,981,297	75.7	5,460,640	3,516,502	2,923,519	3,175,361
Central Vermont.....	May 433	629,970	96,470	726,440	224,366	114,509	338,536	88.5	93,455	74,451	54,015	—108,542
Chesapeake & Ohio.....	5 mos. 2,650	2,635,833	534,816	3,170,649	552,225	577,751	75,795	83.5	569,023	474,331	393,113	—132,719
Chesapeake & Ohio.....	5 mos. 2,640	5,805,884	759,738	6,565,622	1,331,782	2,646,094	118,200	67.2	3,108,823	2,457,121	2,051,175	1,586,332
Chicago & Alton.....	May 1,055	1,683,165	549,275	2,232,440	338,783	578,814	894,308	78.8	522,565	414,266	235,559	252,031
Chicago & Alton.....	5 mos. 1,055	8,438,926	2,554,114	10,993,040	1,434,631	3,020,398	343,185	50.2	2,352,233	1,851,677	1,004,914	1,285,657
Chicago & Alton.....	5 mos. 945	1,576,354	2,132,527	3,708,881	285,474	641,632	793,104	88.9	2,366,287	1,056,996	—36,996	32,514
Chicago & Alton.....	5 mos. 945	8,371,798	1,814,706	10,186,504	1,068,010	3,357,390	388,540	86.4	1,499,954	926,641	302,830	266,642

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MAY AND FIVE MONTHS OF CALENDAR YEAR 1926—CONTINUED

Name of road	Average mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from railway operation	Operating income (or loss)	Net after rents, 1925.
		Freight	Passenger, (inc. misc.)	Total	Way and structures	Maintenance of equipment	Traffic				
Chicago & North Western.....	May 8,457	\$9,415,778	\$2,070,809	\$12,982,873	\$1,996,906	\$2,665,495	\$210,376	77.4	\$1,998,819	\$1,277,453	\$2,011,400
.....5 mos.	8,459	41,237,752	10,398,055	58,326,831	7,807,036	12,977,036	7,807,036	80.8	11,121,173	7,156,392	6,703,171
Chicago, Burlington & Quincy.....	May 9,404	8,981,018	1,750,320	11,987,838	2,453,951	2,635,951	290,094	73.4	1,995,027	1,183,667	1,183,667
.....5 mos.	9,404	46,381,403	9,028,028	61,821,129	7,635,661	13,544,686	1,200,309	73.2	15,359,930	10,810,517	9,765,241
Chicago Great Western.....	May 1,496	1,568,932	239,480	1,968,036	365,277	389,307	78,882	85.5	286,000	306,491	80,115
.....5 mos.	1,496	7,446,004	1,309,330	9,506,793	1,229,124	1,962,888	362,175	82.7	1,041,925	1,229,124	604,249
Chicago, Indianapolis & Louisville.....	May 647	1,113,766	288,222	1,566,312	160,077	358,077	39,396	73.1	421,367	337,662	234,393
.....5 mos.	647	5,603,319	1,099,063	7,420,134	669,529	1,686,565	177,322	74.2	1,917,149	1,522,387	1,016,513
Chicago, Milwaukee & St. Paul.....	May 11,193	9,745,590	1,468,181	12,537,479	2,430,109	2,956,956	231,415	85.1	1,867,568	1,116,001	\$15,454
.....5 mos.	11,193	47,525,081	7,585,568	61,429,925	8,479,426	15,869,200	1,143,484	85.9	9,878,420	6,114,462	4,490,644
Chicago, Peoria & St. Louis.....	May 130	21,315	1,824	28,596	7,972	2,817	956	105.0	—1,725	6,114,462	—13,035
.....5 mos.	198	239,524	38,143	307,344	59,519	55,090	4,444	102.4	—7,506	—19,945	—80,833
Chicago River & Indiana.....	May 19	.....	.....	547,141	60,431	79,293	726	65.7	182,243	143,180	260,812
.....5 mos.	19	.....	.....	2,701,161	279,276	386,199	4,168	67.1	912,597	707,651	1,196,235
Chicago, Rock Island & Pacific.....	May 7,563	7,089,967	1,227,324	9,754,199	1,306,827	2,422,925	327,394	84.0	2,564,364	570,416	1,797,948
.....5 mos.	7,563	35,443,159	8,959,373	48,744,313	6,278,824	11,662,300	1,149,180	83.1	8,236,400	5,274,034	3,791,362
Chicago, Rock Island & Gulf.....	May 458	357,339	63,466	480,544	62,228	75,983	19,485	79.5	38,310	80,227	37,769
.....5 mos.	458	1,818,643	362,337	2,402,495	341,943	383,069	94,825	81.1	453,257	362,723	239,128
Chic., St. Paul, Minn. & Omaha.....	May 1,841	1,487,057	334,242	1,979,920	340,485	387,546	34,520	80.8	1,651,282	1,086,817	1,107,598
.....5 mos.	1,841	7,601,794	1,954,138	10,331,489	1,372,547	2,026,196	174,779	80.8	1,651,282	1,086,817	801,359
Cincinnati, Indianapolis & Western.....	May 317	217,066	26,231	370,083	66,317	85,985	15,755	90.5	35,320	16,820	17,942
.....5 mos.	317	1,666,987	121,401	1,910,876	223,311	426,713	78,768	83.1	285,985	194,640	257,111
Chicfield Railroad.....	May 309	609,300	25,790	646,802	69,978	160,342	123,461	61.4	249,626	189,625	247,536
.....5 mos.	309	3,169,721	131,717	3,370,483	311,940	939,562	113,464	63.5	1,230,304	930,202	1,400,158
Colorado & Southern.....	May 1,056	743,663	104,944	956,530	153,797	239,560	16,348	84.1	153,153	88,666	78,149
.....5 mos.	1,056	3,856,257	527,945	4,820,059	591,743	1,173,632	69,467	80.9	911,358	602,727	346,501
Ft. Worth & Denver City.....	May 491	663,260	179,192	936,692	114,667	153,813	20,869	66.1	1,534,260	1,344,886	1,114,260
.....5 mos.	491	3,425,964	835,569	4,617,176	420,445	882,359	81,351	66.8	1,534,260	1,344,886	1,114,260
Wichita Valley.....	May 271	68,352	16,086	92,956	16,847	2,088	34	68.0	29,750	30,200	2,567
.....5 mos.	271	475,446	88,185	601,092	85,613	42,545	80	50.5	61,300	213,476	110,941
Columbus & Greenville.....	May 167	113,747	20,579	144,467	35,466	17,706	1,799	82.8	24,486	109,618	27,556
.....5 mos.	167	597,269	117,842	762,152	206,685	17,706	14,925	84.7	116,891	109,618	47,240
Delaware & Hudson.....	May 881	3,641,340	233,350	4,077,704	415,418	927,863	48,721	69.4	1,246,717	1,158,716	1,185,593
.....5 mos.	881	14,623,428	1,320,363	16,904,055	2,068,746	4,368,036	242,871	81.0	2,405,898	2,764,851	2,942,207
Delaware, Lackawanna & Western.....	May 992	5,789,589	1,072,966	7,723,429	1,181,956	1,381,956	141,959	68.0	2,471,597	1,754,005	1,576,066
.....5 mos.	992	24,258,030	5,099,440	33,465,332	2,081,236	6,647,280	627,358	74.3	8,589,495	5,068,219	6,124,544
Denver & Rio Grande Western.....	May 2,564	2,065,965	310,012	2,567,779	531,619	500,056	64,703	78.0	565,347	374,490	462,613
.....5 mos.	2,564	9,945,208	1,545,021	12,378,106	2,247,327	2,426,316	277,901	75.6	3,601,280	2,069,803	2,357,244
Denver & Salt Lake.....	May 255	249,564	26,214	296,556	137,134	104,384	17,588	105.7	16,967	22,968	28,001
.....5 mos.	255	1,243,952	123,616	1,475,095	442,402	501,590	380,260	92.2	115,161	85,154	96,273
Detroit & Mackinac.....	May 375	98,708	16,922	129,024	22,601	34,556	2,152	87.9	15,628	11,709	19,762
.....5 mos.	375	428,198	112,877	601,916	96,026	194,082	9,567	95.7	6,026	—18,540	10,455
Detroit & Toledo Shore Line.....	May 50	315,028	.....	315,028	66,999	32,944	3,527	61.5	122,940	99,138	96,852
.....5 mos.	50	2,032,573	.....	2,032,573	253,295	177,492	16,639	48.8	1,050,914	933,050	463,780
Detroit Terminal.....	May 26	.....	256,523	256,523	42,185	14,670	.....	64.7	90,663	66,936	85,786
.....5 mos.	26	.....	1,088,846	1,088,846	188,819	84,892	572,157	70.3	225,147	162,256	164,996
Detroit, Toledo & Ironton.....	May 486	1,066,743	6,436	1,086,797	198,207	220,978	10,542	71.1	314,157	256,795	330,564
.....5 mos.	486	5,455,133	49,779	5,566,685	773,328	1,050,788	54,815	65.0	1,947,661	1,605,924	1,073,068
Duluth & Iron Range.....	May 275	761,684	4,068	867,062	132,728	103,032	19,212	52.1	415,184	344,043	347,196
.....5 mos.	275	1,086,713	31,810	1,366,296	386,734	536,822	75,522	128.2	1,354,359	1,210,833	1,073,832
Duluth, Missabe & Northern.....	May 306	2,004,756	5,463	2,010,219	339,610	191,169	352,435	40.2	1,354,359	972,907	1,572,037
.....5 mos.	306	2,999,281	33,070	2,750,772	891,695	985,685	14,543	106.7	—184,634	—767,443	—605,423
Duluth, Winnipeg & Pacific.....	May 178	164,681	9,731	184,633	44,227	57,280	61,434	95.3	8,580	—1,165	353
.....5 mos.	178	858,519	63,539	955,496	220,590	296,456	336,209	83.6	156,639	108,738	137,308
Elgin, Joliet & Eastern.....	May 459	2,089,720	23	2,089,743	171,553	473,426	13,527	62.1	3,783,906	3,177,202	2,421,370
.....5 mos.	459	9,930,119	43	10,878,052	848,288	2,307,387	68,051	65.2	3,783,906	3,177,202	2,421,370
Erie Railroad.....	May 2,053	7,238,540	995,281	9,004,382	1,111,702	1,347,018	148,494	83.1	1,525,601	1,159,337	1,370,310
.....5 mos.	2,053	33,276,787	4,730,885	41,669,430	5,047,152	11,550,897	745,653	86.0	5,456,113	3,600,571	4,490,578
Chicago & Erie.....	May 269	1,029,323	34,993	1,187,386	149,114	167,000	25,035	62.7	442,643	378,769	406,574
.....5 mos.	269	5,217,803	255,658	5,937,635	602,786	723,532	119,736	60.6	2,340,891	2,021,454	565,371

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MAY AND FIVE MONTHS OF CALENDAR YEAR 1926—CONTINUED

Name of road	Average mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from railway operation	Net after rents	Net after taxes
		Freight	Passenger	Total	Freight	Passenger	Total				
New Jersey & New York	45	\$27,673	\$100,805	\$128,478	\$13,575	\$68,444	\$82,019	83.3	\$22,385	\$18,703	\$16,326
N. Y., Susquehanna & Western	135	1,504,825	2,002,701	3,507,526	2,214,515	598,682	2,813,197	87.2	374,887	238,669	188,168
Evansville, Indianapolis & Terre Haute	146	168,603	4,667	173,270	33,986	66,220	100,206	77.2	40,994	36,161	19,789
Florida East Coast	849	8,804,101	5,088,375	13,892,476	2,236,112	172,185	2,408,297	66.1	5,991,061	4,366,524	2,803,232
Fort Smith & Western	249	99,996	11,889	111,885	25,666	43,053	68,719	86.6	15,911	10,263	3,121
Galveston Wharf	13	558,656	68,935	627,591	131,937	236,098	368,035	85.5	96,235	69,266	8,413
Georgia R. R.	328	372,150	76,319	448,469	71,304	203,275	274,579	86.3	65,765	58,288	61,111
Georgia & Florida	406	1,557,693	408,894	1,966,587	1,108,855	1,049,924	2,158,779	81.8	479,279	425,299	335,655
Grand Trunk Western	347	1,572,299	154,083	1,726,382	38,892	570,720	609,612	72.5	498,051	419,921	330,220
Atlantic & St. Lawrence	166	846,214	133,814	980,028	136,872	567,744	704,616	89.8	19,154	5,460	108,127
Chic., Det. & Canada Gr. Tr.	59	260,737	3,069	263,806	4,293	94,712	99,005	55.2	139,861	128,591	98,640
Det., Grand Haven & Milwaukee	189	605,420	34,964	640,384	20,248	508,739	528,987	50.6	786,838	738,393	480,054
Great Northern	8,221	9,927,870	862,926	10,790,796	1,086,231	13,997,402	15,083,633	76.5	1,041,152	21,976	4,272
Green Bay & Western	234	126,761	4,208	130,969	5,313	44,566	49,879	72.8	188,754	141,614	72,005
Gulf & Ship Island	307	266,576	42,566	309,142	17,323	63,431	80,754	115.7	-51,924	-77,641	-92,912
Gulf, Mobile & Northern	466	447,140	29,890	477,030	79,474	332,069	411,543	112.0	-202,521	-333,064	-431,454
Hocking Valley	348	1,730,981	62,311	1,793,292	206,399	421,435	627,834	60.1	795,118	683,509	574,548
Illinois Central	5,484	6,834,232	314,572	7,148,804	875,448	7,523,757	8,399,205	71.9	2,613,137	1,692,705	1,248,472
2 Yazoo Mississippi Valley	4,874	9,747,422	1,815,697	11,563,119	1,892,976	2,955,833	4,848,809	78.9	2,675,153	1,857,655	1,937,248
Illinois Central Combined	6,254	11,168,829	2,065,259	13,234,088	2,352,411	3,291,786	5,644,197	77.1	1,826,599	1,027,074	1,054,456
Kansas City, Mexico & Orient	272	159,767	7,553	167,320	39,462	48,376	87,838	102.6	-4,606	-8,298	19,512
Kans. City, Mex. & Orient of Tex.	465	275,761	16,233	291,994	714,384	179,181	893,565	107.4	-53,197	-72,154	16,559
Kansas City Southern	784	1,312,232	131,089	1,443,321	185,926	277,465	463,391	84.3	47,711	40,711	29,900
Texasarkana & Ft. Smith	81	238,256	10,506	248,762	6,626	70,461	77,087	81.1	258,048	222,625	34,970
Kansas, Oklahoma & Gulf	314	180,074	4,917	185,000	67,030	61,677	128,707	87.6	32,373	13,830	1,657
Lake Superior & Ishpeming	160	191,075	2,598	193,673	42,054	21,175	63,229	132.8	-325,630	-399,755	-480,898
Lake Terminal	13	442,065	24,120	466,185	15,310	12,347	27,657	54.2	101,450	89,852	88,133
Lehigh & Hudson River	96	293,651	1,803	295,454	307,282	26,165	333,447	95.5	7,848	-54,683	-74,268
Lehigh & New England	219	521,820	1,212	523,032	68,190	103,543	171,733	88.1	16,302	9,905	11,876
Lehigh Valley	1,363	24,794,115	3,002,546	27,796,661	2,975,208	6,433,348	9,408,556	65.2	4,584,665	378,725	252,879
Louisiana & Arkansas	302	111,167	18,440	129,607	43,759	61,254	105,013	66.2	115,810	81,364	65,505
Louisiana Ry. & Nav. Co.	337	1,220,901	85,536	1,306,437	242,631	292,614	535,245	65.7	72,743	422,825	343,664
					287,014	26,306	313,320	74.7	100,910	-9,817	-173,235

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MAY AND FIVE MONTHS OF CALENDAR YEAR 1926—CONTINUED

Name of road	Average mileage operated during period.	Operating revenues			Operating expenses			Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rents.	Net after rents, 1925.
		Freight.	Passenger.	Total (inc. misc.).	Way and structures.	Maintenance of equip- ment.	Traffic.	Trans- portation.				
Louisiana Ry. & Nav. Co. of Texas, May 5 mos.	206	\$79,270	\$5,158	\$89,770	\$19,306	\$15,705	\$1,885	\$44,481	97.0	\$2,718	—\$7,716	—\$7,716
Louisville & Nashville, May 5 mos.	206	479,641	28,493	525,698	96,757	82,809	16,144	200,888	90.8	49,253	—19,210	—19,210
Louisville & Nashville, May 5 mos.	206	9,272,532	1,843,422	11,777,382	2,692,363	2,092,402	231,355	4,107,410	76.6	2,775,903	2,248,903	1,829,512
Louisville & Nashville, May 5 mos.	5,038	47,711,864	9,208,926	60,254,360	8,327,793	13,757,133	1,244,181	21,632,506	77.3	13,687,814	10,720,614	8,963,798
Louisville, Henderson & St. Louis, May 5 mos.	199	190,416	57,167	265,608	57,031	31,389	8,814	99,847	101.2	—3,081	—18,083	—18,083
Louisville, Henderson & St. Louis, May 5 mos.	199	1,236,484	261,855	1,578,788	338,558	237,577	13,157	53,453	75.5	387,211	293,556	240,786
Maine Central, May 5 mos.	1,121	1,098,910	299,867	1,579,209	276,364	335,057	13,065	627,805	83.1	265,415	198,150	269,986
Maine Central, May 5 mos.	1,121	6,057,984	1,563,962	8,357,059	1,290,944	1,663,498	64,773	3,457,159	80.6	1,622,601	1,128,012	1,219,344
Midland Valley, May 5 mos.	64	306,477	28,891	346,596	66,714	36,199	6,266	86,931	62.0	131,537	111,160	92,916
Midland Valley, May 5 mos.	64	1,491,823	154,307	1,711,074	250,880	183,067	31,605	444,697	58.6	709,127	621,082	530,280
Minneapolis & St. Louis, May 5 mos.	1,627	923,589	78,693	1,066,908	416,700	271,316	37,266	507,052	119.8	—211,537	—274,009	—298,757
Minneapolis & St. Louis, May 5 mos.	1,627	4,888,860	482,370	5,693,034	1,154,078	1,374,472	181,021	2,668,314	98.3	99,200	—353,723	—443,132
Minneapolis, St. Paul & S. S. Marie, May 4 mos.	4,400	3,049,678	396,564	3,766,897	667,534	732,567	73,530	1,431,901	80.1	733,329	528,514	455,733
Minneapolis, St. Paul & S. S. Marie, May 4 mos.	4,400	13,716,790	2,302,315	17,448,680	2,515,948	3,677,486	367,333	7,276,678	83.1	2,947,044	1,780,146	1,364,566
Duluth, South Shore & Atlantic, May 5 mos.	590	528,021	61,907	619,928	89,183	76,384	7,075	188,535	87.4	54,318	25,318	10,901
Duluth, South Shore & Atlantic, May 5 mos.	590	1,595,419	383,199	2,134,894	293,679	395,115	34,797	571,588	81.9	386,746	241,746	146,441
Spokane International, May 5 mos.	165	91,401	7,751	106,006	14,620	8,086	3,344	33,451	62.9	39,303	33,931	25,675
Spokane International, May 5 mos.	165	407,624	52,760	491,399	63,204	38,510	16,757	160,357	64.2	175,446	148,555	118,620
Mississippi Central, May 5 mos.	161	116,583	9,767	130,892	23,677	24,677	7,833	35,636	76.2	31,157	21,923	28,518
Mississippi Central, May 5 mos.	161	583,765	48,847	655,029	92,789	128,760	38,127	177,410	72.8	179,426	129,826	154,595
Missouri & North Arkansas, May 5 mos.	364	109,425	15,337	133,038	53,028	27,293	9,316	56,849	115.9	—21,119	—23,743	—34,500
Missouri & North Arkansas, May 5 mos.	364	570,176	76,325	688,815	239,131	130,686	41,575	277,032	105.5	—37,673	—108,239	—119,887
Missouri-Kansas-Texas, May 5 mos.	1,799	2,168,854	392,123	2,767,024	305,546	672,898	64,226	718,209	66.5	911,041	712,187	768,624
Missouri-Kansas-Texas, May 5 mos.	1,799	10,577,014	1,845,958	13,438,181	1,291,778	3,267,512	297,841	3,661,340	66.5	4,430,985	3,407,838	3,907,560
Missouri-Kansas-Texas of Texas, May 5 mos.	1,389	1,075,710	348,783	1,553,538	299,050	216,306	40,865	631,018	81.2	222,502	238,454	83,649
Missouri Pacific, May 5 mos.	7,347	5,691,614	1,624,294	8,029,803	1,103,121	1,103,121	27,795	3,241,834	77.7	1,791,980	1,523,426	681,760
Missouri Pacific, May 5 mos.	7,347	4,391,632	1,258,313	10,480,970	1,727,952	2,156,260	267,964	3,741,637	78.9	2,207,996	1,745,052	1,310,216
Gulf Coast Lines, May 5 mos.	922	1,279,334	183,360	1,555,696	217,446	228,231	39,986	428,176	61.99	591,316	525,590	412,924
Gulf Coast Lines, May 5 mos.	922	5,511,112	907,158	6,418,270	1,102,014	1,102,014	197,523	2,666,861	66.96	2,262,395	1,937,572	1,519,375
International-Great Northern, May 5 mos.	1,159	1,210,352	209,047	1,536,176	241,265	241,265	33,334	609,110	79.03	322,171	273,962	178,586
International-Great Northern, May 5 mos.	1,159	5,434,955	964,242	7,050,240	1,253,015	1,253,015	164,593	2,979,386	82.85	1,209,377	997,292	576,724
Texas & Pacific, May 5 mos.	1,953	2,010,416	471,542	2,695,559	464,656	545,295	68,624	995,655	81.0	511,573	348,897	242,696
Texas & Pacific, May 5 mos.	1,953	10,391,127	2,370,346	13,855,617	2,264,884	2,735,128	335,021	4,840,000	79.6	2,835,127	2,624,105	1,631,863
Mobile & Ohio, May 5 mos.	1,161	1,382,149	115,531	1,577,545	231,805	231,805	52,444	553,895	76.2	375,912	261,042	209,012
Mobile & Ohio, May 5 mos.	1,161	7,128,618	567,628	8,116,494	1,116,207	1,537,198	255,514	2,802,154	73.2	2,177,563	1,676,250	1,418,291
Memphis, May 5 mos.	130	431,207	20,254	456,369	62,500	65,000	1,234	118,991	56.4	158,849	178,664	94,770
Memphis, May 5 mos.	130	2,521,467	116,784	2,675,493	312,500	325,000	5,520	790,374	55.2	1,198,247	1,080,503	487,871
Memphis, May 5 mos.	130	9,503,393	1,669,919	11,173,312	1,629,919	2,421,311	3,375	701,200	74.6	4,346,346	3,600,737	34,534
Montour, May 5 mos.	57	88,200	194	89,302	21,962	37,541	1,109	15,968	93.1	6,143	2,916	31,455
Montour, May 5 mos.	57	292,854	1,333	297,346	85,729	186,819	6,320	75,821	130.7	388,754	388,754	134,901
Nashville, Chattanooga & St. Louis, May 5 mos.	1,259	1,430,532	371,124	1,933,951	349,670	425,695	74,131	714,171	84.7	295,137	220,088	171,989
Nashville, Chattanooga & St. Louis, May 5 mos.	1,259	7,464,894	1,922,791	10,095,455	1,632,935	2,022,306	404,538	3,677,795	80.7	1,951,673	1,575,805	1,275,519
Nevada Northern, May 5 mos.	165	57,711	7,970	72,526	9,617	4,578	881	13,880	46.4	38,842	30,082	40,348
Newburgh & South Shore, May 5 mos.	165	302,966	40,135	377,348	63,393	29,652	4,350	73,464	51.8	181,891	131,414	131,839
Newburgh & South Shore, May 5 mos.	165	1,871	1,871	1,871	1,871	1,871	1,871	1,871	1,871	1,871	1,871	1,871
New Orleans Great Northern, May 5 mos.	274	220,068	28,143	257,722	28,064	53,268	7,527	74,381	68.3	81,750	62,264	23,328
New Orleans Great Northern, May 5 mos.	274	1,104,063	125,637	1,267,819	149,811	250,172	35,244	371,467	68.2	403,030	307,907	239,288
New York Central, May 5 mos.	6,930	20,232,146	7,827,598	28,059,744	3,989,414	6,590,437	387,580	10,332,980	72.3	8,908,246	6,395,535	5,839,113
New York Central, May 5 mos.	6,930	99,249,901	37,997,749	137,100,314	18,929,417	35,817,105	1,948,767	55,168,542	76.5	36,943,233	26,108,983	23,405,154
Cincinnati Northern, May 5 mos.	244	251,796	6,032	267,828	45,045	70,198	6,466	117,205	68.6	115,702	92,640	62,855
Cincinnati Northern, May 5 mos.	244	1,823,359	32,877	1,890,138	203,405	335,389	29,421	639,844	66.5	55,519	505,971	370,458
Cleveland, Cin., Chicago & St. Louis, May 5 mos.	2,391	5,653,627	1,342,948	7,331,385	935,700	1,567,607	125,886	2,667,608	73.1	2,081,968	1,618,934	1,431,741
Cleveland, Cin., Chicago & St. Louis, May 5 mos.	2,391	27,793,799	6,348,085	37,322,857	3,929,205	8,092,607	642,076	13,834,054	75.7	9,056,493	6,380,506	6,471,608
Indiana Harbor Belt, May 5 mos.	116	906,233	44,878	951,111	177,863	140,627	4,668	300,596	69.6	252,592	234,398	186,553
Indiana Harbor Belt, May 5 mos.	116	4,487,861	479,618	5,487,489	479,618	643,433	24,439	2,027,300	71.7	1,182,260	964,216	733,756
Michigan Central, May 5 mos.	1,871	5,592,919	1,716,883	8,111,353	1,067,243	1,489,693	103,925	2,557,719	68.2	2,576,386	2,077,797	1,900,539
Michigan Central, May 5 mos.	1,871	26,942,017	8,097,890	38,831,627	3,956,102	7,608,731	558,026	12,669,898	68.3	12,304,485	9,835,383	9,244,728
Pittsburgh & Lake Erie, May 5 mos.	231	2,191,334	241,502	2,432,836	361,164	856,531	24,315	813,679	84.4	395,844	234,343	565,571
Pittsburgh & Lake Erie, May 5 mos.	231	11,788,228	1,877,714	13,459,896	1,806,397	4,289,301	124,399	4,379,795	71.8	2,466,779	1,555,134	3,497,449
New York, Chicago & St. Louis, May 5 mos.	1,691	4,338,963	160,948	4,650,763	632,523	876,971	127,075	1,533,872	71.9	1,309,041	1,053,273	912,843
New York, Chicago & St. Louis, May 5 mos.	1,691	21,215,495	677,045	22,628,669	2,665,368	4,378,736	610,711	7,882,162	71.9	8,095,900	6,260,346	4,373,938
N. Y., New Haven & Hartford, May 5 mos.	1,918	5,961,005	3,992,931	11,173,456	1,828,091	2,194,622	373,836	3,725,984	74.2	2,881,218	2,432,280	1,897,499
N. Y., New Haven & Hartford, May 5 mos.	1,918	27,493,773	19,829,208	53,522,978	6,778,832	11,229,425	373,611	19,283,420	68.0	13,522,852	11,284,533	8,836,347
Central New England, May 5 mos.	279	2,854,018	19,386	2,964,642	467,086	481,815	33,574	1,020,449	70.3	876,332	745,569	673,552

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MAY AND FIVE MONTHS OF CALENDAR YEAR 1926—CONTINUED

Name of road	Average mileage operated during period.	Operating revenues			Maintenance of way and structures.		Operating expenses			Net from railway operation.	Operating income (or loss).	Net after rents, 1925.		
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equip. ment.	Traffic.	Trans- portation.	General.				Total.	
New York Connecting.....	May 20	\$204,232	.....	\$236,401	\$21,990	\$15,021	.....	\$51,543	\$1,377	\$99,931	\$146,470	\$107,670	\$118,502	\$89,110
New York Connecting.....	5 mos.	989,121	.....	1,138,958	107,201	63,559	.....	259,101	7,627	437,488	701,470	510,670	489,275	514,351
New York Ontario & Western.....	May 569	865,697	.....	1,227,397	\$174,246	1,227,326	.....	\$15,621	34,132	914,233	313,166	263,125	197,304	174,641
New York Ontario & Western.....	5 mos.	3,179,449	.....	4,529,194	538,021	1,027,061	.....	79,214	173,798	3,945,883	583,311	333,128	96,628	61,634
Norfolk & Western.....	May 2,241	8,359,731	605,963	9,306,053	1,242,375	1,678,475	2,380,113	105,754	162,977	5,562,364	3,743,689	2,993,694	3,230,163	1,792,897
Norfolk & Western.....	5 mos.	40,036,149	2,995,645	44,671,807	6,027,242	8,724,888	12,025,983	535,579	801,521	28,119,550	16,552,257	12,794,791	14,243,013	9,626,653
Norfolk Southern.....	May 931	717,672	68,079	826,156	109,159	133,848	23,815	303,739	27,378	581,365	244,791	196,956	155,737	54,619
Norfolk Southern.....	5 mos.	3,479,865	332,531	4,025,329	516,977	617,242	115,265	1,509,755	138,298	2,843,312	1,182,017	941,432	733,673	526,993
Northern Pacific.....	May 6,682	5,806,911	994,453	7,488,797	1,475,379	1,748,578	2,559,179	267,136	224,088	6,049,054	1,439,743	774,627	1,155,394	685,899
Northern Pacific.....	5 mos.	28,082,012	4,561,858	35,728,951	5,657,101	7,301,586	13,047,044	1,110,300	1,211,664	28,610,538	7,098,413	3,781,577	5,760,936	4,059,456
Northwestern Pacific.....	May 493	338,198	192,721	591,816	99,225	83,766	227,258	9,764	18,422	438,409	153,407	111,792	100,208	69,038
Northwestern Pacific.....	5 mos.	1,470,539	754,417	2,461,896	495,256	406,992	1,043,084	32,359	91,088	2,068,197	393,699	187,864	145,455	54,024
Pennsylvania R. R.....	May 10,518	40,239,523	12,167,351	57,820,596	7,419,125	13,250,175	20,397,569	702,836	1,557,098	44,631,342	13,798,254	10,610,183	9,245,070	7,888,478
Pennsylvania R. R.....	5 mos.	194,700,902	58,032,562	277,450,869	37,111,895	67,322,966	105,433,178	3,463,290	7,812,990	224,830,171	52,620,698	40,824,672	34,545,471	29,726,954
Baltimore, Chesapeake & Atlantic.....	May 130	83,614	31,936	122,776	19,049	56,941	77,466	1,319	3,299	158,074	153,407	40,681	40,637	37,704
Baltimore, Chesapeake & Atlantic.....	5 mos.	325,053	112,333	466,237	49,818	187,014	361,687	7,503	16,704	622,726	136,489	163,570	169,038	173,975
Long Island.....	May 397	1,042,618	2,236,578	3,520,987	489,045	522,732	1,409,873	33,107	71,741	2,535,314	985,673	766,874	494,445	521,562
Long Island.....	5 mos.	397,446,766	9,018,763	14,535,054	2,204,975	2,621,721	6,624,172	134,061	373,967	12,005,036	2,530,018	2,015,745	1,222,807	1,453,764
West Jersey & Seashore.....	May 378	560,013	597,413	1,105,265	131,806	151,962	440,482	75,182	28,223	853,215	252,050	155,720	128,275	121,518
West Jersey & Seashore.....	5 mos.	1,978,977	2,446,569	4,630,383	998,265	751,586	2,200,562	75,182	126,574	4,155,228	475,155	337,232	220,596	320,114
Peoria & Pekin Union.....	May 19	22,175	1,938	139,001	18,536	14,472	55,906	924	7,863	97,701	41,300	24,300	50,274	33,371
Peoria & Pekin Union.....	5 mos.	109,195	13,394	740,561	69,290	74,361	315,277	4,383	41,313	499,594	240,867	156,867	271,693	227,114
Pere Marquette.....	May 2,243	3,118,966	292,006	3,448,723	542,974	794,781	1,230,160	5,188	106,082	2,732,096	916,627	723,927	573,830	480,338
Pere Marquette.....	5 mos.	15,056,333	1,505,515	17,687,218	1,593,058	3,813,334	6,326,821	271,027	605,417	12,654,793	5,033,425	4,036,008	3,407,906	2,583,529
Pittsburgh & Shawmut.....	May 102	129,400	2,566	133,842	19,773	47,570	35,080	1,270	7,665	111,358	22,384	22,229	30,096	21,444
Pittsburgh & Shawmut.....	5 mos.	637,686	23,473	671,096	85,767	216,510	186,802	6,837	34,672	510,588	140,508	139,658	200,692	89,795
Pittsburgh & West Virginia.....	May 92	335,910	5,962	383,639	52,379	91,153	8,727	68,747	28,844	263,829	119,810	71,291	154,834	186,235
Pittsburgh & West Virginia.....	5 mos.	1,808,335	30,795	2,016,807	160,326	447,551	40,008	396,872	94,040	1,263,995	81,412	559,270	946,747	760,246
Pittsburgh, Shawmut & Northern.....	May 210	154,133	2,908	162,223	34,128	31,518	1,606	59,722	5,404	132,378	29,845	26,856	10,780	11,389
Pittsburgh, Shawmut & Northern.....	5 mos.	709,973	15,840	743,692	122,186	174,887	286,719	8,835	28,281	620,891	122,801	107,636	63,806	95,154
Quincy, Omaha & Kansas City.....	May 249	47,582	13,007	69,006	44,330	12,696	716	34,363	2,714	94,610	137,1	35,070	33,988	16,895
Quincy, Omaha & Kansas City.....	5 mos.	228,309	84,681	351,636	137,696	77,548	175,198	4,234	13,002	406,792	55,156	81,653	95,203	119,692
Reading Company.....	May 1,138	7,067,627	806,651	8,271,212	1,553,027	1,790,972	3,386	2,770,056	180,586	6,385,189	1,886,023	1,449,056	1,528,107	1,702,374
Reading Company.....	5 mos.	35,406,007	3,133,573	39,449,580	5,367,720	6,180,925	14,437,785	307,376	89,332	29,883,916	9,256,861	7,014,601	7,820,590	7,806,729
Atlantic City.....	May 161	136,095	209,470	345,150	40,763	38,775	4,072	40,763	3,168	52,183	3,976	538	26,492	7,802
Atlantic City.....	5 mos.	644,524	740,911	1,375,056	433,242	163,962	24,039	902,808	26,040	1,570,960	95,844	241,570	381,598	439,147
Perkinston.....	May 41	120,276	5,232	128,996	13,697	7,570	106	50,057	1,072	72,556	56,440	49,555	44,119	42,464
Perkinston.....	5 mos.	508,477	23,729	548,908	44,053	31,664	233,444	537	4,971	314,903	234,005	196,917	170,848	152,911
Port Reading.....	May 19	140,402	.....	186,304	40,778	10,159	66,399	1,399	1,399	118,764	67,340	50,805	6,241	11,263
Port Reading.....	5 mos.	849,958	.....	1,105,103	110,535	42,902	403,752	1,145	11,544	569,875	535,228	455,197	112,725	43,869
Richmond, Fred'sburg & Potomac.....	May 117	636,930	360,285	1,181,441	109,246	184,943	8,788	371,083	32,723	740,891	440,550	354,714	296,902	299,394
Richmond, Fred'sburg & Potomac.....	5 mos.	2,526,920	2,197,777	5,724,697	452,331	878,296	43,342	1,848,296	182,679	3,603,371	2,158,340	1,743,556	1,467,852	1,439,020
Rutland.....	May 413	358,555	80,340	574,967	120,191	106,924	11,171	218,355	13,524	471,902	103,065	74,339	79,359	63,297
Rutland.....	5 mos.	1,627,141	513,408	2,221,165	467,349	562,413	50,246	1,115,004	67,460	2,270,692	450,473	313,047	360,610	197,279
St. Louis-San Francisco.....	May 4,986	5,345,082	1,293,720	7,193,423	985,621	1,439,313	114,117	2,426,027	256,599	5,166,048	2,027,375	1,668,219	1,739,372	1,724,341
St. Louis-San Francisco.....	5 mos.	26,637,011	6,237,139	35,496,316	4,260,062	7,043,083	537,178	12,269,284	1,226,702	25,187,523	10,308,793	8,453,268	8,462,452	8,152,565
St. Louis-San Francisco.....	May 233	80,202	15,786	105,753	22,477	22,685	3,489	50,648	4,923	104,182	1,571	2,582	1,089	28,007
St. Louis-San Francisco.....	5 mos.	395,585	75,587	520,105	113,860	101,932	16,743	264,198	26,668	522,948	100,5	23,764	64,535	49,332
St. Louis-San Francisco & Texas.....	May 137	122,794	12,115	139,873	26,656	25,337	53,975	7,623	7,623	118,933	20,040	18,537	18,537	16,944
St. Louis-San Francisco & Texas.....	5 mos.	664,911	60,039	754,613	108,691	123,932	25,434	278,675	36,883	573,487	181,126	167,061	48,583	92,427
St. Louis-San Francisco & Texas.....	May 940	1,171,929	109,963	1,353,426	196,391	241,429	360,625	59,143	929,674	365,502	423,752	365,502	284,835	352,705
St. Louis-San Francisco & Texas.....	5 mos.	6,349,030	568,237	7,304,756	1,087,741	1,336,482	286,286	1,996,323	295,390	4,977,015	2,327,741	2,003,611	1,580,371	1,568,224
St. Louis-Southwestern of Texas.....	May 807	418,615	59,707	524,163	176,724	123,350	23,679	270,477	33,060	595,601	113,6	99,203	25,804	54,439
St. Louis-Southwestern of Texas.....	5 mos.	2,308,726	282,921	2,893,118	895,934	647,786	121,542	1,215,413	164,123	3,054,280	221,112	360,545	77,651	42,259
San Antonio, Uvalde & Gulf.....	May 318	152,997	22,514	191,006	27,292	40,108	13,542	58,867						

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MAY AND FIVE MONTHS OF CALENDAR YEAR 1926—CONTINUED

Name of road	Average mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from railway operation	Operating income (or loss)	Net after rents, 1925
		Freight	Passenger	Total (inc. misc.)	Maintenance of way and structures	Equip-ment	Traffic				
Georgia Southern & Florida.....	May 401	\$356,463	\$153,549	\$555,614	\$90,238	\$93,328	\$19,447	74.7	\$140,449	\$104,685	\$78,948
.....	5 mos.	2,114,310	860,441	3,196,959	428,276	442,899	92,263	71.4	915,594	750,310	479,510
New Orleans & Northwestern.....	May 207	388,847	82,521	511,536	59,916	68,272	13,280	71.4	190,211	129,698	99,590
.....	5 mos.	2,053,906	384,429	2,614,289	333,976	383,988	62,406	63.0	996,446	684,444	550,326
Northern Alabama	May 110	115,931	8,153	126,737	22,008	4,399	2,076	55.0	57,013	48,877	26,131
.....	5 mos.	567,040	42,964	623,840	118,244	26,749	11,019	59.8	250,843	220,071	106,580
Southern Pacific	May 8746	12,817,040	3,216,085	17,710,595	2,744,262	2,949,650	357,857	71.8	4,990,621	3,573,573	3,244,707
.....	5 mos.	57,057,686	16,552,368	80,769,723	12,771,511	14,543,118	1,707,278	74.9	20,280,700	13,543,597	15,694,398
Atlantic Steamship Lines	May ...	780,729	46,684	953,111	18,911	210,825	16,870	91.8	77,744	69,403	72,191
.....	5 mos.	4,092,899	195,583	5,041,774	81,904	893,436	78,255	87.7	622,046	572,743	575,220
Galveston, Harrisburg & S. Antonio.....	May 2,104	1,563,420	425,586	2,164,585	431,611	489,358	52,751	92.3	163,559	66,362	74,932
.....	5 mos.	8,344,185	2,215,051	11,596,766	2,260,303	2,474,883	278,909	87.7	1,403,777	886,950	719,137
Houston & Texas Central.....	May 891	743,471	240,909	1,075,131	263,548	251,513	26,933	84.7	164,426	122,000	81,308
.....	5 mos.	3,831,307	1,095,382	5,353,240	1,051,053	1,221,426	139,618	84.7	826,485	518,707	435,990
Houston East & West Texas.....	May 191	211,424	35,040	258,738	46,267	53,283	13,714	69.6	78,560	64,986	32,933
.....	5 mos.	1,031,137	176,073	1,271,570	259,114	268,032	37,399	74.4	324,991	251,716	182,858
Louisiana Western	May 207	213,936	74,179	309,962	52,202	69,394	14,693	83.5	51,151	30,497	26,038
.....	5 mos.	1,082,773	383,824	1,578,573	248,152	311,037	78,884	79.8	319,484	195,484	161,434
Morgan's L. & T. R. & S. Co. May 400	431,349	126,475	611,867	194,571	161,090	178,157	35,941	114.1	-86,712	-137,231	-140,494
.....	5 mos.	2,316,359	637,604	3,254,043	828,917	821,828	118,591	105.3	-172,472	-137,231	-311,739
Texas & New Orleans.....	May 569	624,890	146,140	822,334	163,622	209,251	14,896	88.3	96,396	60,357	51,256
.....	5 mos.	3,154,489	729,525	4,154,810	831,596	882,149	81,133	85.0	621,523	444,524	430,563
Spokane, Portland & Seattle.....	May 584	482,893	108,313	649,012	125,889	186,930	11,609	68.0	203,007	130,806	77,382
.....	5 mos.	2,266,933	486,151	3,037,426	483,495	467,237	49,696	68.4	961,162	576,365	404,554
Tennessee Central	May 296	213,986	33,263	261,044	64,793	47,005	9,344	86.5	35,146	27,756	17,74
.....	5 mos.	1,120,630	153,862	1,474,232	290,087	224,629	38,655	82.1	241,164	209,153	89,039
Terminal Railroad Ass'n of St. L. May 55	151,045	1,092,871	181,045	1,514,916	93,928	98,791	2,386	64.3	355,050	204,094	348,698
.....	5 mos.	5,991,288	739,591	8,281,828	828,917	821,828	118,591	64.3	1,765,057	1,412,041	1,631,795
Toledo, Peoria & Western.....	May 248	85,338	16,608	110,517	23,459	22,669	5,697	101.1	-1,236	-8,936	-16,148
.....	5 mos.	409,135	104,615	556,647	102,086	143,827	9,094	107.2	-40,101	-76,599	-139,927
Trinity & Brazos Valley.....	May 367	113,466	8,934	128,545	48,185	34,753	4,543	131.0	13,158	169,363	64,687
.....	5 mos.	651,134	44,601	728,788	246,094	164,740	22,343	122.1	-160,889	-199,619	-302,450
Ulster & Delaware.....	May 128	64,192	12,534	115,213	20,950	18,366	2,004	84.2	18,176	12,426	8,363
.....	5 mos.	197,324	44,856	407,434	77,590	86,741	7,318	103.9	15,736	-14,487	-43,664
Union Railroad of Penna.....	May 45	.....	.....	1,127,087	108,833	229,144	194	69.7	341,713	252,748	35,150
.....	5 mos.	.....	.....	4,620,254	481,600	1,089,466	899	82.4	811,819	670,700	918,157
Union Pacific	May 3,691	6,129,628	1,322,043	8,314,310	1,269,882	1,901,467	236,269	74.3	2,138,959	1,411,570	1,283,482
.....	5 mos.	30,133,418	6,044,762	39,824,274	4,909,592	9,192,745	874,232	71.9	11,180,516	7,713,341	7,341,882
Oregon Short Line.....	May 2,537	2,127,645	336,029	2,688,555	592,441	500,458	61,891	79.1	361,795	303,052	245,328
.....	5 mos.	11,095,563	1,617,629	13,704,408	2,479,236	2,649,789	236,404	76.0	3,282,720	1,991,982	1,726,869
Oregon, Wash. R. R. & Nav. Co. May 2,237	1,846,546	313,620	2,370,733	457,221	377,416	831,124	120,763	80.2	469,992	297,627	193,928
.....	5 mos.	8,310,957	1,483,290	10,597,374	2,193,219	1,877,331	361,467	83.9	1,763,143	906,506	473,023
Los Angeles & Salt Lake.....	May 1,207	1,438,434	427,812	2,693,280	334,304	391,164	89,468	78.1	442,414	318,862	199,847
.....	5 mos.	7,171,093	1,707,886	9,792,738	2,073,994	2,043,915	330,130	85.1	1,555,895	788,544	586,493
St. Joseph & Grand Island.....	May 258	251,646	16,302	287,917	60,486	46,638	2,970	76.4	68,025	48,972	35,960
.....	5 mos.	1,330,610	84,850	1,496,112	244,039	226,731	15,129	70.6	440,031	317,785	261,129
Utah	May 111	144,695	115	145,354	21,805	44,762	2,708	69.3	44,658	35,036	8,020
.....	5 mos.	653,350	743	636,368	72,003	198,540	14,103	70.1	190,325	142,765	139,048
Virginian	May 545	1,584,780	55,038	1,737,945	235,502	359,390	13,359	56.6	753,628	638,616	599,829
.....	5 mos.	7,855,100	295,991	8,599,639	1,032,765	1,783,206	64,504	75.4	3,438,570	2,852,571	2,220,947
Wabash	May 2,524	4,253,398	844,568	5,098,448	935,006	1,066,413	155,569	77.3	1,341,288	1,079,860	894,038
.....	5 mos.	22,705,165	3,525,112	28,218,546	3,643,306	5,066,418	748,349	75.9	6,861,695	5,594,245	3,913,722
Western Maryland	May 804	1,641,314	43,271	1,746,627	270,166	357,139	35,791	68.3	553,146	473,146	439,396
.....	5 mos.	8,660,655	228,545	9,088,972	1,159,383	2,031,200	179,811	80.4	2,527,546	2,356,826	2,075,826
Western Pacific	May 1,042	1,489,422	188,957	1,858,423	227,993	223,325	36,433	80.6	2,227,592	1,962,927	1,721,514
.....	5 mos.	4,412,432	620,624	5,348,465	864,645	1,053,309	183,754	80.1	1,064,399	574,438	439,310
Wheeling & Lake Erie.....	May 511	1,625,285	40,652	1,769,925	259,524	406,423	31,273	70.3	524,889	384,513	360,016
.....	5 mos.	7,457,105	185,066	8,071,262	986,687	2,023,935	159,655	72.5	2,220,286	1,552,767	1,413,950

General News Department

(Continued from page 107)

the purpose of the fixation of group rates. As a practical matter, that issue is now before the commission in the Western Advance Rate Case. The position of the western carriers is there defined. They are not requesting that rates at present be based on a full measure of present-day construction costs, for sufficient reasons which there appear, these being considerations of policy and of rate conditions peculiar to that case and not pertinent here."

British Columbia Hearing on Canadian Rates

Premier John Oliver, of British Columbia, was the first witness this week at the sitting of the Dominion Railway Board in Vancouver, when the Board opened its hearing of representations on the equalization of freight rates case.

G. G. McGeer, counsel for the government in the several applications which this province has pending, was prepared with a number of witnesses, among them being some of the leading business men of the province.

The present inquiry, which is wide open to representations of all kinds bearing on the general direction in the former government's order-in-council directing the board to bring about equalization as far as possible in Canada, will hear representations from British Columbia on the following points:

1. The demand for complete elimination of the mountain scale on all rates.
2. The demand for reduction on the rate of domestic grain to the same level as that on export grain.
3. The demand that the railways be compelled to live up to the letter of the order directing export grain rates to be equalized east and west.
4. The long-standing application for reduction in express rates, on which no judgment has been given.

Wage Statistics for April

The number of employees reported by Class I railroads to the Interstate Commerce Commission for the month of April, 1926, was 1,783,411, an increase of 37,997, or 2.2 per cent over the number reported for March, 1926. Owing to seasonal requirements, the number of employees in the maintenance of way group shows an increase of 44,107, but this number was slightly offset by reductions in the maintenance of equipment, and the transportation groups. The total compensation, \$242,943,370, shows a decrease of \$6,684,887, or 2.7 per cent. This decrease in compensation in the face of an increase in employment is explained by the fact that April had only 26 working days while March had 27. It is also noted that the principal increase in employment occurred in the number of lower paid employees.

Compared with the returns for the corresponding month last year, the number of employees reported in April, 1926, increased 2.2 per cent, and the total compensation increased 3.5 per cent. As indicated in the subjoined table, the increase in employment appears largely in the maintenance of way, and the transportation groups. The difference between the percentage increase in employment and in compensation is due to slight increases in the number of hours worked per employee and in the average rates paid.

The number of employees at the middle of the month was:

Group	April 1926	Increase over	
		March 1926	April 1925
Executives, official, and staff assistants....	16,796	21	287
Professional, clerical and general.....	283,631	499	2,365
Maintenance of way and structures.....	403,858	44,107	24,481
Maintenance of equipment and stores.....	522,613	(d) 2,941	(d) 4,810
Transportation (other than train, engine and yard).....	207,308	(d) 500	487
Transportation (yardmasters, switch tend- ers and hostlers).....	24,045	(d) 242	144
Transportation (train and engine service)...	325,160	(d) 2,947	14,814
Total.....	1,783,411	37,997	37,768

(d) Decrease.

Traffic News

The Ft. Worth & Denver City has put into operation a new train known as the West Texan, between Dallas, Tex., and Amarillo, which leaves Dallas at 6:30 p. m., and arrives in Amarillo at 7:30 the next morning.

The Missouri Pacific will offer prizes to approximately 50 boys and girls who are members of the Texas boys' and girls' home demonstration clubs in counties served by the railroad. The prizes will be free trips with all expenses paid to the annual farmers' short course at College Station, Tex., on August 2 to 7, and will be awarded to winners of a contest on the writing of a story of not more than 1,000 words on the agricultural possibilities of his or her county. The winner of the contest in each county will be awarded the trip.

Northwest Shippers' Advisory Board Meeting

The third annual session of the Northwest Shippers' Advisory Board was held at Helena, Mont., on July 8. The reports of the commodity committees indicated successful business during the next three months. A. H. Bowman, commissioner of agriculture, spoke on the advantages Montana has to offer new settlers. Officers elected were: Chairman, C. N. Dowlin; vice-chairman, E. R. Polleys; secretary, Frank Venable; and assistant secretary, J. C. O'Connell.

Net Ton-Miles Break Record

Railway freight traffic for the first five months of 1926 amounted to 187,869,465,000 net ton-miles, according to a compilation by the Bureau of Railway Economics, exceeding by two tenths of one per cent the previous record for net ton-miles established in the corresponding period of 1923 and by 6.4 per cent the figures for the corresponding period of last year. Previous records for the month of May also were broken with a total of 39,831,820,000 net ton-miles, an increase of six tenths of one per cent over the total for May, 1923.

Central Western Shippers' Advisory Board Meeting

The eleventh regular meeting of the Central Western Shippers' Advisory Board, which was held at Salt Lake City, Utah, on July 8, was attended by 221 persons. Of this number 126 represented carrier systems, while the remaining were shippers. Representatives of Utah reported that the tomato pack will be about 35 per cent of the 1925 pack and the pea crop approximately 80 per cent of that of last year, while grains will show an increase of approximately 20 per cent. The export movement of eggs and poultry products is expected to attain an increase of 30 per cent for the year. Thus far the 1926 shipments have shown an increase of 15 to 20 per cent over the corresponding period of 1925. The state's peach crop is forecast at but 50 per cent in some sections, particularly in Northern Utah. The general season in Idaho is about three weeks ahead of last year, according to reports of representatives of this state. There is between a 10 and 20 per cent increase in the acreage of winter wheat, while the lamb crop is approximately 15 per cent greater than that of 1925.

Heavy shipments of coal are expected in Colorado, the movement equaling 12,500 cars per month with the heavy season to open about August 1. Other shipments from this state are expected to be about 5 per cent under the 1925 total.

Wyoming is preparing to ship the largest lamb crop in its history, calculated to be one-third greater than last year. The state records approximately a 12 per cent increase in the number of range cattle. There has been a large increase in the area devoted to sugar beets and an unusually large tonnage is expected this season. Nebraska expects a 35,000,000 bu. wheat crop, which is slightly less than the production of last year.

Motor Transport News

The National Railways of Mexico, according to a dispatch to the Wall Street Journal, have received a shipment of 25

motor trucks from the United States which will be placed in short haul freight service in the vicinity of Mexico City.

The Public Service Commission of Pennsylvania has granted to F. J. Scarr, supervisor of motor service of the Pennsylvania Railroad, on behalf of Pennsylvania General Transit Company (the P. R. R.'s motor transport subsidiary, authority to operate motor buses on a 12-mile route from Chambersburg to Piney Mountain Inn.

An open forum meeting on motor bus and truck regulation will be held by the Traffic Club of Chicago in that city on Thursday, July 22. The meeting will be held at noon in the Red Room of the Hotel LaSalle. Bus and truck regulation from the viewpoint of the shipper, the rail and water carriers and the motor vehicle operators themselves, will be discussed. The three interests involved will each be represented by a speaker.

Package freight motor truck service connecting the freight station at Sherman and Harrison streets, Chicago, with Englewood, Gresham, Washington Heights, Morgan Park and Blue Island will be established by the Chicago, Rock Island & Pacific on July 19. The equipment used will be a ten-ton Mack tractor and four 22-ft. Trailmobile semi-trailers. The motor service will be operated on a fixed schedule and will handle freight in less than carload lots.

The Pennsylvania has arranged by contract with a local independent bus operator to handle passenger traffic between Clayton, Del. (on the main line of the N. Y. P. & N.) and Smyrna (2 miles) paralleling a branch line on which railroad passenger service has been discontinued. The railroad has been handling this business with a gasoline rail car, which was operated at a loss. A local fare will be charged by the bus operator on the Smyrna-Clayton route, through ticketing by the railroad to Smyrna having been discontinued.

Bus and Truck Operators Interested in I. C. C. Investigation

Eighty-two thousand owners of motor truck fleets will be directly affected by the hearings which the Interstate Commerce Commission is to hold in 13 cities of the country on the operation of trucks and buses either by, in connection or compared with other transportation carriers, according to figures compiled and issued by the National Automobile Chamber of Commerce, based on companies operating three or more motor trucks. Of the total 28,526 have five trucks or more, while 7,344 operate ten vehicles or more.

Discussing the I. C. C. investigation A. J. Brosseau, chairman of the chamber committee, on this subject said:

"It is evident that the time has come for a survey of the whole field to determine in what ways the truck and bus can be best fitted into the transportation system and what special advantages their use can give both to the public and to other carriers. The part played in development of new territory, in abandonment of short rail branches, in the location of freight terminals; the effect upon merchants' inventories and manufacturers' production; and the question of what changes may be necessary in present methods of regulation, are all pertinent to the investigation and of far-reaching importance to the public in our judgment.

"In order to aid the commission to arrive at all the facts we have suggested through our Washington office that the government supplement its railroad questionnaire by a similar study directed to truck and bus operators. While the commission has no power to compel answers we believe that the public interest will be best served if shippers and operators alike will not only furnish facts but will appear before the I. C. C. at those hearings held in their territory. In order to assure this result we are sending men into the field to appear before industrial, agricultural, governmental and other interested groups to urge their attendance."

Mr. Brosseau announced that leading truck and bus companies had retained C. C. McChord, formerly a member of the Interstate Commerce Commission, to study the legal questions involved and to make such recommendations as he might find to be of the most service in insuring a sound development of this new and growing phase of transportation.

Commission and Court News

The Interstate Commerce Commission has set July 27 as the date and New York for the place for the resumption for its investigation into the affairs of the Chicago, Milwaukee & St. Paul.

I. C. C. Orders Reduction in Rates from Canada

The Interstate Commerce Commission, Division 1, has issued a decision ordering the railroads to abstain from participating in publishing, demanding or collecting joint rates for the transportation of newsprint paper in carloads from Espanola, Ontario, Canada, to destinations in Wisconsin, Minnesota, Illinois, Missouri, or Iowa, or to Omaha, Neb., exceeding by more than 4 cents per 100 pounds the rates contemporaneously applicable to the transportation of the same commodity from Sault Ste. Marie, Ont., to the same destinations, "according as they participate in the transportation within the United States." The defendant railroads at the hearing denied the jurisdiction of the commission over these joint rates and the representatives of the Canadian roads stated that they would not comply with an order of the commission disturbing the present adjustment of rates on newsprint paper from Canadian points to points in the United States. The commission said, however, that it was not asked to prescribe joint rates for the future or to control the charges of the Canadian lines for services in Canada but that it was asked only to "prescribe the limits of rates in which the carriers under our jurisdiction may participate in so far as the transportation takes place within the United States."

Commissioner Woodlock, in a dissenting opinion, said that the commission has no jurisdiction whatever over such rates; that it can deal with rates to and from the Canadian border, or with the American carriers' division of joint rates with the Canadian lines, at least so far as to prohibit the American carrier from participating in such rates unless they yield what in its judgment is a proper division, "but how we can assume to say what is and what is not a reasonable rate or relation of rates for the movement of traffic wholly in Canadian territory passes my understanding."

Personnel of Commissions

The new Board of Mediation created by the railway labor act held a meeting in Washington on July 9 and elected Samuel E. Winslow, former chairman of the House committee on interstate and foreign commerce, as its chairman. Mr. Winslow was appointed for a five-year term, while the terms of the others expire in from one to four years. The board held an informal discussion of its duties under the law and appointed subcommittees to consider the selection of offices for the board and the disposition of the files of the old Railroad Labor Board.

John J. Marrinan, who has been personal secretary to Secretary Hoover of the Department of Commerce, has been appointed secretary of the board. He was formerly Washington correspondent of the Boston Herald and later was secretary to Mr. Winslow while the latter was a member of the House.

Court News

A conductor was riding in an engine cab when the main pin broke, punching a hole in the boiler. The men on the engine jumped to save their lives. In so doing, the conductor received fatal injuries. In an action for his death, under the Boiler Inspection Act, the Circuit Court of Appeals, Second Circuit, holds, Hough, C. J., dissenting, that the Boiler Inspection Act imposed an absolute duty on the railroad to have the engine boiler and its appurtenances safe to operate, making the railroad an insurer of the safety of the place in which the employee works and of the appliances with which he works. But it must appear that the railroad's failure to comply with the act was the proximate cause of the accident. —Lehigh Valley v. Beltz, 10 F. (2d), 74.

Equipment and Supplies

Locomotives

THE SHANGHAI-NANKING is inquiring through the builders for prices on 13 locomotive boilers.

THE TEXAS-MEXICAN has ordered one 4-6-0 type locomotive from the Baldwin Locomotive Works.

Freight Cars

DARLING & Co. are inquiring for from 7 to 10 all-steel box cars.

THE CHESAPEAKE & OHIO is now asking for bids on 500 hopper bottom gondola car bodies, of 70 tons' capacity. In the *Railway Age* of June 26 this company was reported as preparing specifications covering new bodies for 500 gondola cars of 70 tons' capacity, to be built and installed on second-hand trucks.

Passenger Cars

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for five coaches, to be motorized, as noted below.

THE READING COMPANY has ordered 4 cafe cars from the Pullman Car & Manufacturing Corporation. Inquiry for this equipment was reported in the *Railway Age* of May 22. An order for 3 combination passenger, baggage and mail gas-electric rail motor cars and one passenger trailer car has been given to the J. G. Brill Company.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered from the Electro Motive Company two 550 hp. gas electric power plant units complete, each consisting of two 275 hp. distillate-burning engines with electric equipment to install in 40-ft. steel cars; also five 275 hp. power plant units complete for installation in 70-ft. cars, which latter will be purchased at once.

Motor Vehicles

THE MINNESOTA WESTERN TRANSPORTATION COMPANY, bus operating subsidiary of the Minnesota Western Railroad, Minneapolis, Minn., has bought a Mack semi-deluxe bus for operation between Minneapolis and Stub's Bay, Minn., 12 miles.

Machinery and Tools

THE COLORADO FUEL & IRON COMPANY has ordered a 6-ft. radial drill from the Niles-Bement-Pond Company.

THE CHICAGO & NORTH WESTERN has ordered one electric gantry crane from the Milwaukee Electric Crane & Manufacturing Co.

THE ATLANTIC COAST LINE has ordered a 48-in. by 48-in. by 14-ft. slab miller; two 100-in. heavy boring and turning mills and a 14-in. swing grinder, from the Niles-Bement-Pond Company.

THE ILLINOIS CENTRAL has ordered two 22-ton eight-wheel locomotive cranes for use at Gulfport, Miss., from the Orton Crane & Shovel Co. An order for two 16-in. by 5 ft. centers geared head lathes has been given to the Pratt & Whitney Company.

Iron and Steel

THE GREAT NORTHERN has ordered 10,000 tons of rail from the Illinois Steel Company.

THE SOUTHERN PACIFIC is inquiring for 375 tons of structural steel for use at San Francisco, Cal.

THE LOUISVILLE & NASHVILLE has ordered 1,800 tons of structural steel from the American Bridge Company.

THE PENNSYLVANIA has ordered 1,150 tons of steel for various small bridges, from the McClintic-Marshall Company.

THE NORFOLK & WESTERN is inquiring for 500 tons of steel for bridges and for 550 tons for a roundhouse and machine shop at Williamson, W. Va.

Signaling

THE NEW YORK CENTRAL has placed an order with the General Railway Signal Company for 5 Model 5A low-voltage switch machines for remote control of outlying switches for installation at New Durham, N. J.

THE GALVESTON, HARRISBURG & SAN ANTONIO has placed an order with the National Safety Appliance Company for 75 track magnet units, for installation on the second division of automatic train control to be installed between Glidden, Tex., and San Antonio.

THE FLORIDA EAST COAST has ordered from the General Railway Signal Company 16 Type K color light highway crossing signals for shipment to St. Augustine. This order also includes 8 Model 2B a.c. time element relays, 8 Model 9D slow release d.c. flashing relays, 8 Size K1 110 volt, 60 cycle transformers, 50 Model 1B lightning arresters and 150 R. S. A. terminals.

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company material for extensive additions to the interlocking at "MK" Perrysville, Ohio; also complete new locking and other additions for "BW" Brownell, Pa., and "CN" Millstone Junction, N. J.; also complete new locking for the large electro-pneumatic machine at Summit avenue, Jersey City, N. J.

THE FORT WORTH & DENVER CITY has placed orders with the General Railway Signal Company covering 11 three-indication color light signals, 4 two-indication color light signals and 2 two-indication color light dwarf signals for shipment to Fort Worth, Tex. Included in these orders are 23 4-ohm d.c. neutral relays, 31 500-ohm d.c. neutral relays and 26 Model 5 switch circuit controllers.

THE SOUTHERN has placed a contract with the General Railway Signal Company covering one 24-lever Saxby & Farmer mechanical interlocking machine for installation at Stratton, Ga. This machine will have 18 working levers and 6 spare spaces. The order also includes 8 Model 2 Form B d.c. electric locks, five 10-volt Model 2A d.c. motors, four 2-arm mechanical ground signals, one clockwork time release, three rotary circuit controllers and one 6-way Model 9A d.c. tower indicator.

THE BOSTON & ALBANY has ordered from the General Railway Signal Company one 80-lever Model 2 unit lever type electric interlocking machine for installation at Tower 10, Allston, Mass. This machine will have 67 working levers and 13 spare spaces. All switch levers are to be equipped with forced drop electric locks to operate on 12 volts, arranged to lock in full normal and full reverse position. Lever lights are also to be provided and dwarf signal and calling-on signal levers will be equipped with clockwork time contactors provided with adjustment of from 10 to 30 seconds. The order also includes an operating switchboard.

THE SOUTHERN awarded a contract to the General Railway Signal Company covering the installation of an alternating-current absolute permissive block signaling system between Atlanta and Macon, Ga., a distance of 82 miles. There will be 12 lap sidings with switches controlled mechanically and signals controlled by table interlockers, lap siding signals being 2-arm with approach locking, upper arm being semi-automatic and lower arm non-automatic. The order includes equipment for two substations to supply 4,400 volt, 3 phase, 60 cycle current. Also 142 Model 2, Form A track relays, 347 Model 2, Form B line relays, 205 Type K $\frac{1}{2}$ track transformers, 94 Type K1 track transformers, 98 Model 5 switch circuit controllers, 131 Type L, Size 1 transformers, 2,100 lightning arresters and 24 single unit table interlockers. Installation will be made by forces of the signal company.

Supply Trade News

The Mississippi Valley Structural Company will construct a fabricating plant at Chicago, to cost about \$750,000.

O. L. Moore, formerly engineer, inspection bureau of the Universal Portland Cement Company, has been appointed engineer of tests.

A. O. Norton, Inc., has opened an office at San Francisco, Calif., and will be directly represented by Harry H. Hale, who has charge of the Pacific coast territory.

Arthur Fletcher, representative of Mudge & Co., Chicago, has been promoted to assistant sales manager, with headquarters at Chicago. He was born on March 4, 1890, and in



Arthur Fletcher

1908 entered business as an architectural draftsman. In 1912 he entered the employ of the Canadian National as a draftsman and assistant to the resident engineer at Oshawa, Ont. In 1915 he resigned to become connected with an industrial concern in Chicago and two years later entered the employ of the Chicago, Rock Island & Pacific in the mechanical department. He held several positions including those of statistician and chief clerk to the mechanical engineer, and on December 1, 1925, resigned to become a representative of Mudge & Co., which position he has held until his recent promotion.

The Kuhlman Electric Company, Bay City, Mich., has appointed the Continental Sales & Engineering Company as its district representative at 839 Oliver building, Pittsburgh, Pa.

B. M. Horter, formerly of the Philadelphia office of the Cutler-Hammer Manufacturing Company, has been appointed manager of the Boston office, to succeed J. M. Fernald, resigned.

George E. Watts, formerly with the Duff Manufacturing Company, Pittsburgh, Pa., has joined the Timken-Detroit Axle Company, Detroit, Mich., as a railway representative, with his headquarters in Atlanta, Ga.

The Graybar Electric Company, New York, has opened a new branch office and warehouse at Commerce and Buncombe streets, Asheville, N. C. H. H. Hix, formerly of the Atlanta, Ga., branch of the company, is in charge of the new branch.

Frank N. Grigg, who for a number of years has been southeastern representative of the Heywood-Wakefield Company, Wakefield, Mass., railway car seat department, has tendered his resignation with the company to take effect September 1.

F. E. Case, who for many years has been in charge of the railway equipment engineering department, of the General Electric Company, Schenectady, N. Y., has had added to his duties the supervision of the railway motor and railway locomotive engineering departments.

The St. Louis Car Company, St. Louis, Mo., is constructing two additional units to its plant. One building, 1,000 ft. by

130 ft., will be used for steel fabricating and the construction of cars and will be equipped with four 10-ton cranes of 60-ft. span, while the second building, 100 ft. by 60 ft., will be used for housing light steel materials.

L. F. Kuhman has been appointed vice-president and director of the Andrews-Bradshaw Company, Pittsburgh, Pa., sales manager for the Tracyfier steam purifier and gas and vapor scrubber. Mr. Kuhman has been associated with the company for the past three and a half years, and prior to that time, he was for eight years sales engineer for the Ingersoll-Rand Company in the Pittsburgh district.

The C. A. Mauk Lumber Co., Toledo, Ohio, handling west coast and southern lumber, has established a new department, catering to the railroad and car shop trade, with H. J. Fletcher in charge. Mr. Fletcher was formerly sales-representative of the Germain Company, with headquarters in Chicago, and lately with the W. L. Shepherd Lumber Company, as sales-manager of its railroad and car material department.

The Roberts & Schaefer Company, Chicago, has taken over the manufacture and sale of the rotary car-dumpers, car-feeders, car-controls, and all other equipment previously manufactured and sold by the Car-Dumper & Equipment Company, of Chicago. The manufacture and sale of all equipment heretofore sold by the Car-Dumper & Equipment Company will be handled in a department to be headed by George N. Simpson, president of the Car-Dumper & Equipment Company.

C. L. Walker, formerly assistant manager of the Gary plant of the American Bridge Company, has been appointed manager of the Walter Bates Steel Corporation, Gary, Ind. James S. Marlin, formerly structural and transmission line engineer of the Duquesne Light Company, Pittsburgh, Pa., has been appointed chief structural engineer, and E. L. Gemmill, formerly chief structural engineer of the Blaw Knox Company at Pittsburgh, has been appointed sales manager of the tower division.

Obituary

Grafton Greenough, vice-president of the Baldwin Locomotive Works, in charge of domestic sales, died on July 8 at the Hahnemann hospital, Philadelphia, Pa., after an illness

of only a few days. He was in his sixtieth year. Mr. Greenough was a native of Philadelphia, and was educated in the public schools of that city. He served an apprenticeship in the plant of the I. P. Morris Company, Port Richmond, which later became part of the William Cramp & Sons Ship & Engine Building Company. His career with the Baldwin Locomotive Works started on December 28, 1885, when he entered the engineering department as a draftsman and de-



Grafton Greenough

signer. In August, 1899, he was transferred to the operating department, serving as assistant superintendent and plant engineer. At the time of the Louisiana Purchase Exposition in 1904, he was placed in charge of the St. Louis office, later assuming charge of the sales organization in Philadelphia as general sales manager. In September, 1917, he was appointed vice-president in charge of sales, and in March, 1919, when a separate foreign sales department was organized, his title was changed to vice-president in charge of domestic

sales. Mr. Greenough was national councilor of the American Chamber of Commerce of Mexico, and was a member of a number of clubs and several other organizations. In connection with his work in the sales department, he was a close student of locomotive design and took an active interest in the development of railroad motive power.

Trade Publications

SPIRAL RIVETED PIPE.—The American Spiral Pipe Works, Chicago, has issued an attractive eight page folder announcing that the All Taylor spiral riveted pipe is now made of copper bearing steel. This pipe is made in sizes from 3 to 42 in. in diameter and in lengths up to 40 ft. and is adaptable to uses anywhere where there is need of strong, light, large capacity pipe.

DURABLE DOUGLAS FIR.—A remarkably attractive bulletin of 32 pages has been issued by the West Coast Lumber Trade Extension Bureau, Seattle, Wash., presenting in popular form a description of Douglas fir lumber and a brief exposition of its application to various purposes. The bulletin is tastefully illustrated with photographs of the trees and with pictures illustrating the applications of the wood to various purposes.

ELECTRIC LOCOMOTIVES.—Circular No. 400, giving a survey of the most important improvements which have been realized with electric locomotives equipped with the new Brown-Boveri individual axle drive, has been issued by the American Brown-Boveri Electric Corporation, 165 Broadway, New York. Cross-sectional drawings show the leading dimensions and axle pressures of the 2D2 locomotives for the Paris-Orleans Railway.

OIL FOUNTAIN.—The Bowser fountain of illuminated oil is described and attractively illustrated in a booklet, entitled "Show Your Colors," which has been issued by S. F. Bowser & Co., Inc., Fort Wayne, Ind. As many as eight oils can be piped to this fountain, which occupies a ground space of about 20 in. square, and each of the lubricating oils dispensed makes a colorful display in the glass tubes which are clustered about the top of the fountain.

ELECTRICAL PROGRESS.—"Industry's Electrical Progress" is the title of Publication No. C-37 which has recently been issued by the Cutler-Hammer Mfg. Co., 1266 St. Paul avenue, Milwaukee, Wis. A number of examples of production economies obtained through the use of the C-H controller in various industries are outlined in this publication, also the duty of motor controllers and the problems to be considered when ordering motor-driven equipment.

METAL FOR BUILDING.—In catalog No. 26, the Mississippi Valley Structural Steel Company lists, illustrates and describes a wide variety of steel and iron accessories used in building construction. These include steel sash, coal chutes, manhole covers, gratings, rolling doors, fire doors, metal stairways, stair railings, fire escapes, sidewalk trap doors, roof trusses, etc. The bulletin is well-illustrated and the matter is presented in a way which gives the user the desired facts in the simplest form possible.

WHITING PRODUCTS.—A condensed catalogue of equipment manufactured by the Whiting Corporation and its subsidiaries for use in foundries, steel plants, power stations, railroad shops, chemical works and other industries, has been issued by the Whiting Corporation, Harvey, Ill. The catalogue (No. 175) is attractively arranged and contains many photographs showing the standard line of Whiting cranes and foundry equipment in operation, also the various specialties and products of the Whiting subsidiaries.

PORTABLE AIR COMPRESSORS.—In bulletin No. 83D, the Sullivan Machinery Company presents a description of its portable air compressors WK 312, 314, 32 and 24, having capacities ranging from 110 to 320 cu. ft. of free air per minute. In strict conformity to the style of previous bulletins issued by this company, the matter is presented in the form of a descriptive article with numerous illustrations of the complete equipment and their various parts as well as photographs showing them in actual use. Topical side and center headings add to the clearness of the treatment.

Railway Construction

BALTIMORE & OHIO.—A contract for bridge work to cost approximately \$40,000 at Guyandotte, W. Va., has been awarded to the Vang Construction Company, Cumberland, Md.

CHESAPEAKE & OHIO.—This company has awarded a contract to the Pittsburgh-Des Moines Steel Company, Pittsburgh, Pa., for the installation of water treating facilities at Raleigh, W. Va.

CHICAGO, MILWAUKEE & ST. PAUL.—This company has awarded a contract to Bentley Brothers, Inc., Milwaukee, Wis., for the construction of a new passenger station at La Crosse, Wis. This station will be a two-story structure of brick construction with stone trim and will cost approximately \$100,000. The entire project, including track changes and auxiliary facilities, will involve a total outlay of about \$300,000.

CHICAGO, ROCK ISLAND & PACIFIC.—A contract has been awarded to Walter H. Denison, Cushman, Ark., for the grading of a portion of a new line from Liberal, Kan., to Amarillo, Tex.

GREAT NORTHERN.—A contract has been awarded to W. T. Butler for the construction of a power substation at Snohomish, Wash., to be used in connection with the electrification of the line in western Washington. Another power substation will be constructed at Tumwater, Wash.

MINNEAPOLIS, NORTHFIELD & SOUTHERN.—Bids will soon be received for the construction of a 1½-mile cut-off near Northfield, Minn., a ½-mile spur track at St. Louis Park, remodeling and enlarging of the roundhouse, shops and coal chute at Glenwood, and for the construction of a steel and concrete bridge over the Minnesota river at Savage.

NEW YORK CENTRAL.—This company has awarded contracts totaling \$1,777,000, as follows:

Nature of work	Location	Probable cost	Firm to which contract was awarded
Mfg., del. and erection of automatic combustion control system in power station.	Fort Morris, N. Y.	\$65,000	The Hagen Corporation, N. Y.
Mfg., del. and erection of gantry crane in freight yard.	Port Morris, N. Y.	35,000	McMyler Interstate Co., N. Y.
Extension of 7 stalls in DeWitt engine house.	Syracuse, N. Y.	50,000	Wm. M. Ballard, Inc., Syracuse, N. Y.
Reconstruction of bridge.	Fordham, N. Y.	285,000	Lyons-Slaterry Co., Inc., N. Y.
Alterations and extensions to platforms, foundations, etc.	Highbridge, N. Y.	30,000	Edw. J. Duffy Co., Inc., Weehawken, N. J.
Mfg., del. and installation of turbo-generator set.	Avis, Pa.	30,000	Westinghouse Elec. & Mfg. Co., N. Y.
Mfg., del. and erection of gantry crane in freight yard.	Kingsbridge, N. Y.	32,000	McMyler Interstate Co., N. Y.
Grading and paving.	Buffalo, N. Y.	600,000	John Johnson Construction Co., Buffalo, N. Y.
Paving, drainage, etc.	Port Morris, N. Y.	60,000	Edw. J. Duffy Co., Inc., Weehawken, N. J.
Mfg., del. and erection of synchronous converter in substation.	Ossining, N. Y.	65,000	General Electric Co., N. Y.
Four-tracking	New Durham to W. Englewood, N. J.	500,000	Walsh Construction Co., Syracuse, N. Y.
Additions to coaling plant.	Wayneport, N. Y.	25,000	Wm. M. Ballard, Inc., Syracuse, N. Y.

NEW YORK, NEW HAVEN & HARTFORD.—This company has authorized the construction of a 7-track classification yard at its Harlem river, New York, terminal; estimated cost, \$120,000.

PENNSYLVANIA.—Grade crossing elimination at Passayunk avenue, Philadelphia, involving 15 crossings and an expenditure of approximately \$1,850,000 has been authorized and contracts for the work awarded to Sinclair & Grigg, Philadelphia. The municipality will share in the expense. A contract for the construction of an overhead bridge on the line of Montgomery avenue, Cynwyd, Pa., to cost approximately \$40,000, has been awarded to the Kaufman Construction Company, Philadelphia.

Railway Financial News

ATCHISON, TOPEKA & SANTA FE.—Acquisition.—The Interstate Commerce Commission has approved the acquisition by this company of the Garden City, Gulf & Northern, which operates a line from Garden City, Kan., to Scott City, 38 miles. The new lease is for a period of 10 years and succeeds one which became effective July 1, 1911, and which expired on June 30, 1926.

ATLANTIC COAST LINE.—Acquisition.—Oral argument was heard by Division 4 of the Interstate Commerce Commission on July 14 on the application of this company to acquire control of the Atlanta, Birmingham & Atlantic through a new company, the Atlanta, Birmingham & Coast. The application was opposed by counsel for a "stockholders' protective committee" on the ground that the terms proposed are inadequate and fail to give recognition to the improved condition of the property.

CHICAGO & ALTON.—Tentative Valuation.—The Interstate Commerce Commission in a tentative valuation report as of June 30, 1919, places the final value for rate-making purposes of the carrier property owned and used at \$54,454,000, while the value of the property used is placed at \$75,960,936, including the property of the Joliet & Chicago; Louisiana & Missouri River; Kansas City, St. Louis & Chicago; and the Rutland, Toluca & Northern and other leased lines. The outstanding capitalization on valuation date was \$125,224,497, and the investment in road and equipment as stated in the company's books was \$119,958,671, but the report says that readjustments required by the accounting examination would reduce this to \$117,109,684. The cost of reproduction new of the property owned was placed at \$53,378,958 and the cost of reproduction less depreciation at \$39,754,469, while the cost of reproduction new of the used property was placed at \$74,303,387 and the cost of reproduction less depreciation at \$56,877,128.

GULF, MOBILE & NORTHERN.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire control of the Jackson & Eastern by purchase of its stock from S. A. Neville, of Meridian, Miss., for an amount to be determined, between \$500,000 and \$510,000. The Jackson & Eastern extends from a connection with the G. M. & N., at Union, Miss., to Lena, Miss., and it is stated to be the intention to extend the line to Jackson, Miss.

NORFOLK & PORTSMOUTH BELT LINE.—Bonds.—This company has applied to the Interstate Commerce Commission for authority to issue \$500,000 of general and refunding mortgage 5 per cent bonds and to sell \$250,000 at 97½ to Kean, Taylor & Co., of New York, to reimburse the treasury for expenditures not yet capitalized.

NEW YORK, CHICAGO & ST. LOUIS.—New Merger Plans.—The Wall Street Journal gives details of the new Van Sweringen merger plan as follows:

Under the modified Nickel Plate merger proposal of the Van Sweringen brothers, Pere Marquette common would be exchanged share for share for the new Nickel Plate common, while the preferred stocks would retain the same ratios as under the original plan, that is, one share of new Nickel Plate preferred for each share of the prior lien and 9-10 share of the Nickel Plate preferred for each share of Pere Marquette preferred.

Chesapeake & Ohio will get a 5 per cent guarantee on its \$120,284,512 stock after conversion of bonds and preferred stock, which has been about completed. In addition, holders of C. & O. common will receive a half share of new Nickel Plate common for each share of C. & O. held.

Erie stockholders will receive the same stock exchange ratios as under the original plan, i. e., preferred one-half share Nickel Plate for each share Erie and common 4-10 share Nickel Plate for each share of Erie. But the participating feature in the pooled rental arrangement under the old plan will probably be somewhat more favorable to those stockholders who do not want to come into the plan.

It is understood that under the new rental arrangement, Erie preferreds will each get 4 per cent. Under the old plan a rental of 3 per cent on the preferreds and 2.40 per cent on the common was to be pooled, and from the total rental thus pooled 4 per cent would be paid the first preferred stockholders, and if the balance was sufficient, 4 per cent was to be paid on the second preferred, and whatever was left was to go to the common. The arrangement was such as to make it more attractive for at least the second preferred and common stockholders to come into the plan.

Hocking Valley minority stockholders, it is understood, will receive the same terms as C. & O. There are only about 21,616 shares in minority hands.

Stock capitalization of the new Nickel Plate Co. under the modified proposal of the Van Sweringens, which may be changed in some respects

before being ratified by directors and stockholders, compares with the old plan as follows:

	New Plan		Old Plan	
	Preferred	Common	Preferred	Common
C. & O.....		\$60,142,256	\$73,697,242	\$59,251,287
Hocking Valley....		1,081,050	1,081,050	1,081,050
Pere Marquette....	\$22,386,100	45,046,000	22,386,100	38,289,100
Nickel Plate.....	25,865,666	30,406,464	25,865,666	30,406,464
Erie	31,952,200	44,992,760	31,952,200	44,992,760
Total	\$80,203,966	\$181,668,520	\$154,982,258	\$174,020,661

*Providing for full conversion of preferred and convertible 5s.

†Conversion privilege of bonds but for then outstanding preferred provided for as latter were to receive 1.15 per cent in new Nickel Plate preferred.

It will also be necessary to authorize an additional \$15,702,400 new Nickel Plate common to provide for convertible privilege of Erie Gold 4s, series D, convertible into Erie common stock at 50 to October 1, 1927.

Pere Marquette Committee.—The sub-committee of the Pere Marquette directors includes Matthew C. Brush, George C. Fraser and David P. Bennett. This committee is negotiating with the Van Sweringens relative to Pere Marquette participation.

Erie Stockholders May Object.—There is a report that preferred stockholders of the Erie may object to the new plan.

Chesapeake & Ohio Minority Continues Opposition.—George S. Kemp of Bryan, Kemp & Co. of Richmond and an active member of the minority stockholders' committee has put himself on record as follows:

"My objection to the new plan of the Messrs. Van Sweringen is based upon its manifest inequity to the Chesapeake & Ohio stockholders. While I am giving my personal views, I believe I am speaking for the committee which represented the minority stockholders before the Interstate Commerce Commission.

"When I say 'manifest inequity', I am speaking for those who have an intimate knowledge of earnings and the earning capacity of the Chesapeake & Ohio Railway. The general public is not expected to be so fully advised.

"Briefly, the Messrs. Van Sweringen are asking the Chesapeake & Ohio stockholders to give up a property which will earn this year approximately \$25 per share on its \$120,000,000 of common stock outstanding in exchange for a guaranty of 5 per cent on the present stock and the offer of a bonus of one-half share of common stock of the new consolidated company for each share of Chesapeake & Ohio stock now outstanding.

"It will be recalled that the commission in its decision stated that the Chesapeake & Ohio was the 'backbone of the merger.' It is 'backbone,' both in treasury assets and in earning power in the new consolidation, and Chesapeake & Ohio would be weakened by taking over the Erie, which is barely earning at the rate of \$1 per share on its common stock for the year 1926.

"Under the original plan, Pere Marquette common stockholders were offered 85 shares of new Nickel Plate common for 100 shares of Pere Marquette. Under the new plan, they are offered 100 shares of common stock in the new company for each 100 shares of Pere Marquette common, an increase of 15 shares on each 100 shares, or 18 per cent. Notwithstanding this increase in the offer for Pere Marquette common, according to the newspapers, their directors are holding out for even better terms, although the offer of 85 per cent in new common was acceptable to them under the original plan.

PLAN HAS EVERYTHING TO GAIN

"It is clear that the new Nickel Plate plan has everything to gain and nothing to lose by a guaranty of 5 per cent, and the offer of 50 per cent of its new common stock which is expected to pay only 6 per cent, thus giving an income of only 8 per cent to the Chesapeake & Ohio stockholders, while the road this year will earn approximately \$25 per share on its common stock, and the stockholders are now receiving not only the regular 8 per cent, but an extra dividend of 4 per cent which extra dividend the road is abundantly able to pay in the current year. Relatively, the new plan is little if any, better than the old plan from the point of view of the Chesapeake & Ohio stockholders.

"The plain English of the whole question is that the Van Sweringens seem bent upon dragging into the consolidation by force a road which, as I have stated before, the commission characterized as 'the backbone of the consolidation,' and they are still inclined to give a wholly inadequate return for what they are getting.

"These earnings of the Chesapeake & Ohio are not of a transitory nature, but so far as can be humanly foreseen, the earnings are likely to continue at a progressive rate. The road originates about 85 per cent of its own business, which is continually growing, and beyond question the territory of this road has the finest bituminous coal in the world, the demand for which is bound to continue to grow, even at the expense of other fields.

"It is upon the foregoing facts in part that I base my opinion that 'in view of the seathing decision of the Interstate Commerce Commission, I was amazed at the audacity of the Messrs. Van Sweringen in coming back with a plan which, while stripped of some of the objections of the old plan, is still very far distant from satisfying the first principles of equity'."

George Cole Scott and John Stewart Bryan, members of the Chesapeake & Ohio minority committee, who were elected members of the C. & O. board of directors, are at present out of the country.

NORFOLK & WESTERN.—Proposed Lease of Virginian.—Oral arguments were heard by the Interstate Commerce Commission on July 8 on the application for authority for a lease of the Virginian to the Norfolk & Western for 999 years. Walter R. Staples, appearing as counsel for the N. & W., said that the report of Examiner Davis recommending denial of the application was based mainly on the suppression of competition and the restriction of routes, and that he had not given sufficient weight

to the offsetting advantages, such as the improved service and the savings in capital and operating expenditures. Arguments in opposition were made by W. S. Bronson, representing the Chesapeake & Ohio, and representatives of the cities of Norfolk, Roanoke and Princeton, Va. Mr. Bronson said that the C. & O., would be willing to acquire the Virginian on terms and conditions fixed by the commission.

READING.—Acquisition.—This company's application for authority to acquire control of the Lehigh & New England by lease for 999 years has been filed with the Interstate Commerce Commission. Stockholders of the Lehigh Coal & Navigation Company which owns the Lehigh & New England approved the lease of the latter to the Reading at a special meeting held on June 30.

SOUTHERN PACIFIC COMPANY.—New Director.—Cleveland E. Dodge, New York City, has been elected a director to fill the vacancy caused by the death of his father, Cleveland H. Dodge, on June 24.

WARRIOR RIVER TERMINAL.—Operation of Line.—The Interstate Commerce Commission has issued a certificate authorizing this company to acquire and operate in interstate commerce that portion of the line of the former Ensley Southern from Ensley Junction, Ala., to Birmingham. The company has also been authorized to issue \$100,000 common stock, 20 secured promissory notes aggregating \$400,000 representing deferred installments on purchase money and 20 secured promissory notes representing interest on the deferred installments of purchase money. This line was formerly a part of the Ensley Southern, all of the capital stock of which was owned by the Southern Railway. The Ensley Southern was placed in the hands of a receiver on July 1, 1924, and was sold at foreclosure April 1, 1926. That portion between Ensley Junction and Birmingham was purchased by the Warrior River Terminal at a price of \$500,000. The new company has been organized in the interest of the Port of Birmingham Company which leases its terminal facilities to the Inland and Coastwise Waterways Service and the Mississippi-Warrior Service. The line forms the sole connecting link between Birmingham and the Warrior River and agreements have been made with the Southern Railway relative to the use of station facilities at Ensley Junction and the use of equipment, yards, etc., of the Tennessee Coal, Iron & Railroad Co. There is now pending before the Interstate Commerce Commission an application covering the acquisition by the Inland Waterways Corporation of the stock of the Warrior River Terminal Company.

WOODWORTH & LOUISIANA CENTRAL.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Woodworth to Lamorie, La., 6 miles.

Average Price of Stocks and Bonds

	July 13	Last Week	Last Year
Average price of 20 representative railway stocks	97.99	96.76	81.33
Average prices of 20 representative railway bonds	97.71	96.85	90.53

Dividends Declared

American Railway Express.—\$1.50, quarterly, payable September 30 to holders of record September 15.
Houston & Texas Central.—2½ per cent, payable July 10 to holders of record July 1.
Hudson & Manhattan.—Preferred, 2½ per cent, semi-annually, payable August 16 to holders of record August 2.
Virginian Railway.—Preferred, 3 per cent, semi-annually, payable August 2 to holders of record July 22.

Valuation Reports

The Interstate Commerce Commission has issued final or tentative valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes, as of the respective valuation dates as follows:

FINAL REPORTS		
Bloomsburg & Sullivan.....	\$560,650	1918
Georgia Northern.....	857,868	1915
Virginia & Kentucky.....	55,321	1916
Fairport, Painesville & Eastern.....	170,125	1917

Railway Officers

Executive

J. P. O'Brien, vice-president of the Oregon-Washington Railroad & Navigation Company, has been elected also president of the Northern Pacific Terminal Company, at Portland, Ore. **E. L. King**, superintendent on the Southern Pacific, with headquarters at Portland, has been elected vice-president. **B. C. Dey**, attorney for the Southern Pacific, has been elected secretary.

The following officers on the Baltimore & Ohio have been elected to similar position on the Cincinnati, Indianapolis & Western: **Daniel Willard**, president; **George M. Shriver**, senior vice-president; **C. W. Galloway**, vice-president in charge of operation and maintenance; **Archibald Fries**, vice-president in charge of traffic and commercial development; **George F. May**, secretary; and **E. M. Devereux**, treasurer.

The following officers of the Oklahoma & Rich Mountain, which will extend from Page, Okla., to Pine Valley, a distance of approximately 17 miles, and which will commence operation within a few months, have been elected: **F. H. Dierks**, president; **Herbert Dierks**, vice-president; **D. V. Dierks**, secretary; **H. L. Dierks**, treasurer; **J. S. Kirkpatrick**, general solicitor, all with headquarters at Kansas City, Mo., and **C. C. Ray**, general manager and traffic manager, with headquarters at DeQueen, Ark.

C. E. Ingersoll, president of the Midland Valley, with headquarters at Philadelphia, Pa., has been elected also president of the Kansas, Oklahoma & Gulf. **H. W. Gibson**, formerly receiver of the Kansas, Oklahoma & Gulf, has been elected vice-president and treasurer. **A. W. Lefebvre**, vice-president of the Midland Valley, with headquarters at Muskogee, Okla., has been elected also vice-president of the Kansas, Oklahoma & Gulf. **C. J. Ingersoll**, assistant to the president of the Midland Valley, has been elected also assistant to the president of the Kansas, Oklahoma & Gulf.

Financial, Legal and Accounting

H. T. Newcomb, who has been appointed general counsel of the Delaware & Hudson, with headquarters at New York, was born on January 4, 1867, at Owosso, Mich., and was educated in the public schools and at Columbian (now George Washington) University. He was employed in the accounting department of the Chicago, Milwaukee & St. Paul, and subsequently by the Interstate Commerce Commission, from 1888 to 1895. From 1895 to 1899 he was chief of the Transportation section in the United States Department of Agriculture and from 1899 to 1901, was expert chief of the Division of Agriculture of the twelfth United States Census. During the later years of his service in Washington he lectured at Columbian University on statistics and transportation. In 1901 he resigned from federal service to become editor of the Railway World. About two years later Mr. Newcomb began the practice of law, appearing in 1902 and 1903 as one of the counsel for the Philadelphia & Reading Coal and Iron



H. T. Newcomb

Company before the Anthracite Strike Commission. From 1903 to 1916 he was engaged in law practice in Washington, in the latter years as the senior member of the firm of Newcomb, Churchill and Frey (later Newcomb & Frey) which he organized in 1907. In 1916 he moved to New York City and after five years' general practice in that city became general solicitor of the Delaware & Hudson, which position he was holding at the time of his recent appointment as general counsel. Mr. Newcomb is the author of many books and articles on legal and economic subjects, including *Railway Economics*, published in 1898; *the Postal Deficit*, published in 1900; and *Constitutionality of the Delegations in the Interstate Commerce Law*, published in 1910.

F. P. Wentz, assistant engineer in the valuation department of the Oregon-Washington Railroad & Navigation, with headquarters at Portland, Ore., has been promoted to valuation engineer, with the same headquarters, succeeding **W. C. Smock**, resigned.

T. H. Niles, auditor of the Midland Valley, with headquarters at Muskogee, Okla., has been appointed also general auditor of the Kansas, Oklahoma & Gulf. **E. J. L. Peet**, claim agent of Midland Valley, with headquarters at Muskogee, has been appointed also freight claim agent of the Kansas, Oklahoma & Gulf.

Maury Middleton, assistant treasurer of the Southern, with headquarters at Washington, D. C., has been elected treasurer, with the same headquarters, to succeed **E. F. Parham**, deceased. **A. E. Tate**, assistant to treasurer, with headquarters at Washington, has been elected assistant treasurer, with the same headquarters. **E. P. Hunter** has been elected an assistant treasurer also, and **J. B. Early** has been promoted to cashier, both with headquarters at Washington, D. C.

Operating

E. C. Bullard, formerly assistant to the receiver of the Kansas, Oklahoma & Gulf, has been appointed acting general manager of that road and of the Midland Valley, with headquarters at Muskogee, Okla. **C. L. Bushell**, general superintendent of the Kansas, Oklahoma & Gulf, has been appointed superintendent of transportation of both roads.

H. A. Benton has been appointed superintendent of the North Florida division of the Seaboard Air Line, with headquarters at Tampa, Fla., succeeding **E. T. Gibson**, transferred. **R. W. Rogers** has been appointed superintendent of the Georgia division, with headquarters at Atlanta, Ga., succeeding Mr. Benton, and **W. C. Kirby** has been appointed general supervisor of yards and terminals, with headquarters at Savannah, Ga.

L. F. DeRamus has been appointed general superintendent of the Northern district of the Southern, with headquarters at Danville, Va., succeeding **W. C. Hudson**, who has been transferred to general superintendent of the Southwestern district, with headquarters at Chattanooga, Tenn. **M. E. Madden** has been appointed superintendent of the Danville division, with headquarters at Greensboro, N. C., and **H. A. DeButts** has been appointed superintendent of the Washington division, with headquarters at Alexandria, Va. **H. B. Munday** has been appointed trainmaster, South End, Washington division, with headquarters at Charlottesville, Va., succeeding **J. S. Walker, Jr.**, who has been transferred to trainmaster, North End, Danville division, with headquarters at Danville, Va., succeeding Mr. Munday. **S. J. Mulvaney** has been appointed assistant to the general superintendent, with headquarters at Asheville, N. C. **R. K. McClain** has been appointed superintendent of the Asheville division, with headquarters at Asheville, N. C., succeeding Mr. Mulvaney. **C. E. Burchfield** has been appointed superintendent of the Knoxville division, with headquarters at Knoxville, Tenn., succeeding **W. D. Post**, who has been transferred in the same capacity to the Coster division, with headquarters at Knoxville, Tenn., succeeding **S. S. Brooks**, who has been transferred to superintendent of the Appalachia division, with headquarters at Bristol, Va., succeeding Mr. Burchfield, transferred. **J. A. Bolich** has been appointed trainmaster of

the Asheville division (Asheville-Connelly Springs), with headquarters at Asheville, N. C., and **C. A. Simpson** has been appointed trainmaster of the Asheville division (Connelly Springs-Salisbury), with headquarters at Hickory, N. C.

Traffic

E. L. Wilkinson has been appointed district freight and passenger agent of the Missouri-Kansas-Texas Lines, with headquarters at Salt Lake City, Utah.

N. L. Rankin, traveling freight agent of the Texas & Pacific, with headquarters at Dallas, Tex., has been promoted to general agent, with the same headquarters, succeeding **J. M. Hartsfield**, deceased.

C. S. Edmonds, general freight and passenger agent of the Midland Valley, with headquarters at Muskogee, Okla., has been appointed also general freight and passenger agent of the Kansas, Oklahoma & Gulf. **E. J. O'Connor**, traffic manager of the Kansas, Oklahoma & Gulf, with headquarters at Muskogee, Okla., has been appointed general freight and passenger agent.

Ralph W. Cooke, who has been promoted to general freight agent of the Pennsylvania, with headquarters at Chicago, was born on March 23, 1878, at Marion, N. Y., and graduated



R. W. Cooke

from the Rochester Business University, Rochester, N. Y., in 1896. He entered railway service in February of the following year as a clerk in the commercial office of Pennsylvania at Rochester, and was promoted to chief clerk in March, 1899. He was transferred to the general freight office at Philadelphia, Pa., in February, 1902, and a year later was appointed freight solicitor at Philadelphia. Mr. Cooke was transferred to Rochester in 1906, and was promoted to traveling

freight solicitor in October, 1907. He was made industrial agent of the lines west in April, 1912, serving in that capacity until October, 1918, when he was made supervisor of loss and damage prevention. He was appointed agricultural and industrial agent in April, 1919, and was promoted to freight claim agent, with headquarters at Chicago, in March, 1920. On November 1, 1923, Mr. Cooke was promoted to assistant general freight agent, with headquarters at Chicago, and he continued in that capacity until his recent promotion to general freight agent.

A. D. Bell, assistant passenger traffic manager of the Missouri Pacific, with headquarters at St. Louis, Mo., has been promoted to passenger traffic manager, with the same headquarters, succeeding **C. L. Stone**, who has retired. **J. G. Hollenbeck**, general passenger agent, with headquarters at St. Louis, has been promoted to assistant passenger traffic manager in place of Mr. Bell. **H. H. Muchall**, assistant general passenger agent, with headquarters at Kansas City, Mo., has been promoted to assistant to the passenger traffic manager, a newly created position. **C. K. Bothwell**, assistant general passenger agent, with headquarters at Little Rock, Ark., has been promoted to general passenger agent, with the same headquarters, also a newly created position.

H. F. Cary, general passenger agent of the Southern, with headquarters at Washington, D. C., has been transferred in the same capacity to Cincinnati, Ohio. He will have charge of passenger traffic on the Southern lines between Cincinnati and New Orleans, Chattanooga and Memphis, Birmingham

and Columbus, Miss., on the St. Louis-Louisville lines and in the territory north of Ohio and west of the Mississippi rivers. **F. N. Westerman**, assistant general passenger agent at Washington, has been transferred to Cincinnati in the same capacity. **E. N. Aiken**, heretofore general passenger agent at Cincinnati, has become general passenger agent at Washington. **F. L. Jenkins**, district passenger agent at Philadelphia, Pa., has been promoted to assistant general passenger agent at Washington. **C. A. Kline**, assistant general passenger agent at Washington, has been promoted to assistant passenger traffic manager, with the same headquarters. He will be assigned to special duties, particularly with reference to service and convention matters.

F. H. Plaisted, who has been promoted to freight traffic manager of the Southern Pacific, with headquarters at Chicago, was born on June 9, 1866, at Cincinnati, Ohio, and entered railroad service in October, 1884, as a clerk on the Kansas City, Ft. Scott & Gulf. He was employed as a clerk on the Union Pacific in March, 1889, and in January, 1893, was promoted to traveling freight agent at Salt Lake City, Utah. He was transferred to San Francisco, Cal., in January, 1896, and in May of the following year, was transferred to Boise, Idaho. Mr. Plaisted was appointed district freight and passenger agent of the Oregon Short Line in 1903, and was promoted to assistant general freight agent in October, 1905. In January, 1912, he was appointed assistant director of traffic of the Union Pacific and Southern Pacific Systems, with headquarters at New York, being made assistant to the director of traffic of the Southern Pacific only in February, 1913. In June of the same year, he was made assistant director of traffic, and he held that position until June, 1925, when he was made assistant to the vice-president in charge of traffic at Chicago. Mr. Plaisted continued in that position until his appointment as freight traffic manager.

Mechanical

M. R. Reed has been appointed acting master mechanic of the Ft. Wayne division of the Pennsylvania, with headquarters at Ft. Wayne, Ind., succeeding **O. C. Wright**, who has been granted leave of absence.

J. L. Cantwell has been appointed master mechanic of the Southern, with headquarters at Spencer, N. C., succeeding **M. D. Stewart**, promoted. **M. R. Brockman** has been appointed master mechanic, with headquarters at Bristol, Va.

Engineering, Maintenance of Way and Signaling

F. W. Armistead, assistant engineer on the Illinois Central, with headquarters at Chicago, has been promoted to roadmaster of the Indiana division, with headquarters at Mattoon, Ill., succeeding **C. W. Lentz**, promoted.

Purchases and Stores

E. V. Purdy has been appointed division storekeeper of the Southern Pacific Lines in Texas and Louisiana, with headquarters at Austin, Texas, a newly created position.

J. L. Higgins, purchasing agent of the Kansas, Oklahoma & Gulf, with headquarters at Muskogee, Okla., has been appointed also purchasing agent of the Midland Valley.

D. W. Metzdorf, acting general storekeeper of the Alaska Railroad, has been appointed general storekeeper, with headquarters at Anchorage, Alaska, reporting to the general manager.

Obituary

S. B. Fisher, formerly chief engineer and more recently consulting engineer of the Missouri-Kansas-Texas, died at Parsons, Kansas, on July 8.

R. T. Bretz, assistant general freight and passenger agent of the Northern Pacific, with headquarters at Tacoma, Wash., died at the Northern Pacific hospital in that city recently.

G. W. Luce, freight traffic manager of the Southern Pacific—who died on July 4, entered railway service in 1875 in the traffic department of the Southern Pacific. In October, 1888,

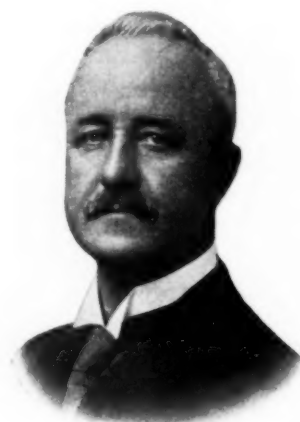


G. W. Luce

he was appointed general agent of the freight and passenger departments of the Texas & Pacific and the Missouri Pacific at San Francisco, Cal., and in September, 1891, was appointed general agent, freight department, of the Union Pacific, at the same place. Mr. Luce returned to the Southern Pacific in 1894, as assistant general freight agent, and was appointed assistant general freight and passenger agent in February, 1898. He was promoted to general freight agent, with headquarters at San Francisco, in October, 1901, and held that position until March, 1911, when he was promoted to assistant to the vice-president in charge of traffic. On July 15, 1912, Mr. Luce was promoted to freight traffic manager, and he held that position until his death.

William B. Scott, formerly president of the Southern Pacific, lines in Texas and Louisiana, who retired from railway service in 1920, died at his country home at Surf, south of

Houston, Tex., on July 7. Mr. Scott was born on August 18, 1862, at Hamilton, Ont., and entered railway service in 1873 as a messenger on the Grand Trunk. He later held various positions including those of freight clerk, telegraph operator and train dispatcher, and in 1887 was appointed chief dispatcher and trainmaster on the Great Northern. He was appointed superintendent of telegraph of the Chicago Great Western in 1889, and in the following year was appointed train-



W. B. Scott

master on the Atchison, Topeka & Santa Fe. Mr. Scott was promoted to superintendent on the Gulf, Colorado & Santa Fe in 1897, remaining there until 1902, when he was appointed superintendent on the Galveston, Harrisburg & San Antonio. He was appointed general superintendent of the Houston & Texas Central in June, 1904, and in May, 1905, became assistant director of maintenance and operation of the Union Pacific and Southern Pacific systems, with headquarters at Chicago. Mr. Scott was elected vice-president and general manager of the Union Pacific in November, 1911. He was elected president of the Southern Pacific, lines in Texas and Louisiana, in September, 1912, and held that position until the beginning of federal control in July, 1918, when he was appointed federal manager of the Southern Pacific lines in Texas and Louisiana, the New Orleans, Texas & Mexico, the St. Louis, Brownsville & Mexico, the San Antonio & Aransas Pass, the San Antonio, Uvalde & Gulf and the Galveston Wharf Company. He retired from railway service on March 1, 1920, when the railroads were returned to their owners at the termination of federal control.